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THE JOURNAL

OF

THE DEPARTMENT OF AGRICULTURE,

VICTORIA, AUSTRALIA.

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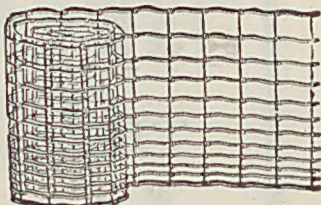
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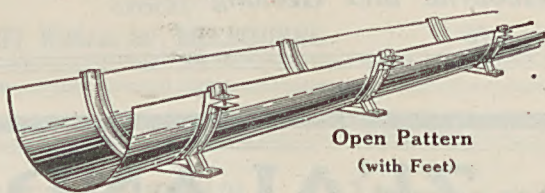
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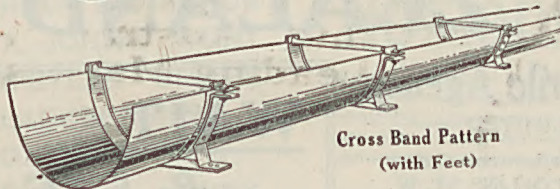
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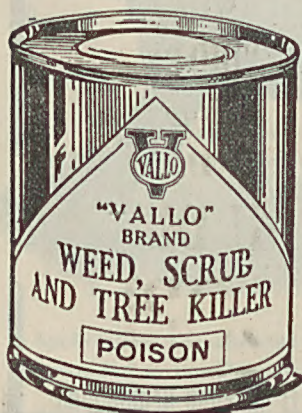
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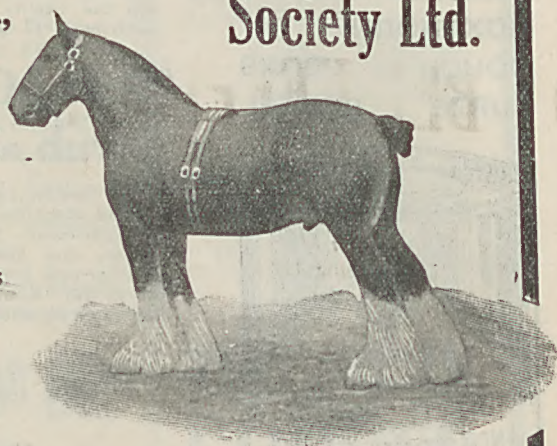
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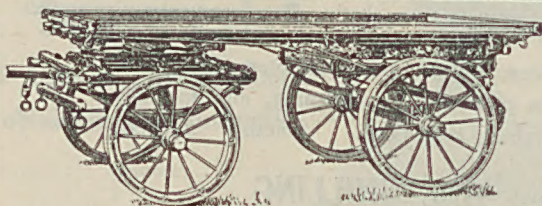
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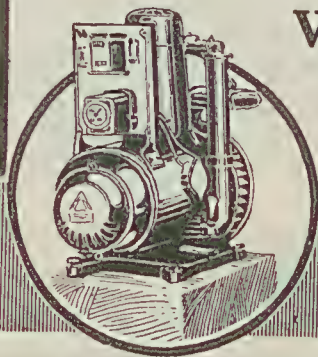
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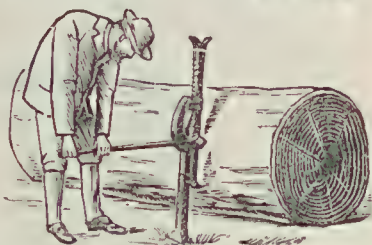
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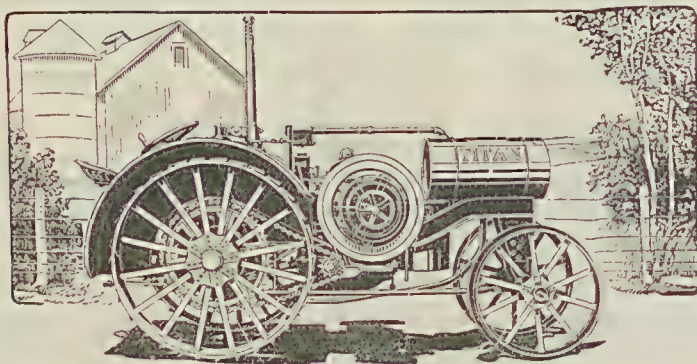
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Vol. XIX.

June, 1921

Part 6.

TENTH VICTORIAN EGG-LAYING COMPETITION.

A. V. D. Rintoul, Chief Poultry Expert.

The 1920-21 egg-laying competition closed with three scores of over 300 eggs in the single test pens, Messrs. A. Siede and Son's Black Orpington laying 309 eggs, the "G.G. Farm's" White Leghorn 307, and Mr. F. G. Fereday's Black Orpington 304 eggs.

A fresh official world's record was established during the four months' winter test, Messrs. A. Siede and Son's Black Orpington laying 116 eggs for the same period.

Improved samples of wheat, wheat pollard, and bran were available during the latter part of the competition, and as this improvement in quality of food is likely to be maintained, better results may be looked for in the future.

The value of the poultry industry in Victoria has now risen to £3,579,230 per annum, and it is, therefore, much to be regretted that the farmers in general throughout the State do not pay more attention to their poultry. A minimum of 100 birds should be kept upon every farm; this would raise the value of the industry to over £5,000,000 a year in this State, and mean another £40 a year to every farmer. For a number of years it has been the policy of the Department of Agriculture to recommend poultry-keeping as an added crop to every farm, but unfortunately many farmers are still somewhat neglectful of their own interests. It is to be hoped, however, that the high cost of living, or the cost of "high" living, may induce many more to realize the possibilities of a small flock of poultry. The wheat farm, the dairy farm, the small mixed farm, as well as the citrons or other orchard undertaking, all present opportunities for poultry-keeping that must not be neglected.

Co-operative marketing would beat down the price-fixing middlemen, who still cheerfully fix the price for an article which during part of the year they rarely handle—the genuine new-laid egg. Co-operative marketing will also enable the primary producer to reap the benefit of

his toil by participation in either cool storage, or overseas export, during the time of plenty each spring. The bar to success is the man who is misled into trying to beat his fellow-producers by getting 1d. or 2d. over the so-called market price (fixed by the middlemen), instead of the producers making their own market by working in unison and harmony.

A new feature is introduced in this report in the shape of a critique on the birds in the single test section, which is intended to be purely



[V.P. Journal.]

Rhode Island White, 259 eggs. (G. McDonnell.)



[V.P. Journal.]

**White Leghorn Team Winners in Dry Mash, 1,474 eggs.
(Norman Meyers.)**

educational, and should be looked upon as such by those whose birds may happen to receive unfavorable mention.

Trap-nest Results.

In my report last year on the ninth Victorian egg-laying competition I wrote as follows:—"During the season 1907-8, at the Maine (U.S.A.) Experimental Station, Dr. Raymond Pearl had, out of a grand total of 58,374 eggs, an average of 4.01 per cent. laid outside the traps; this



[V.P. Journal.]

Team Black Orpingtons, Winners Dry Mash Section, 1,334 eggs. (Jas. A. Dunn.)



[V.P. Journal.]

**Black Orpington Team, Second Wet Mash Section, 1,340 eggs.
(Deep Springs Poultry Farm.)**



[V.P. Journal.]

White Leghorn Team Winners, Trap-nested Section, 1,482 eggs. (D. Gibson.)

being the first season the method was adopted. The Burnley figures for the first year of trap-nesting showed an average of 3.29 eggs laid outside the traps. Dr. Pearl, in his report, wrote that all experimental studies of any magnitude of fecundity in the domestic fowl must rest ultimately upon trap-nest records. In spite of the fact that so much trap-nesting work has been done in the various experimental stations, there has never been any careful study of what may be termed the



[V.P. Journal.]

White Leghorn, Winner in Dry Mash Section, 281 eggs. (Neatis Poultry Farm.)



[V.P. Journal.]

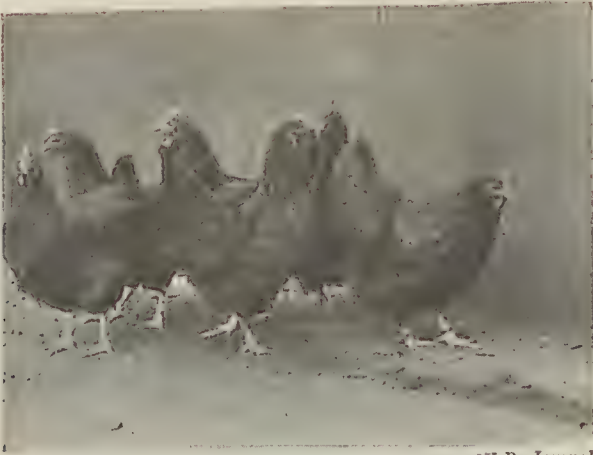
White Leghorn, Winner in Wet Mash Section, 307 eggs. (Geo. Goodisson.)

residual error of trap-nest records. By residual error is meant that error which remains after all instrumental sources of error, such as, for example, failure of a nest to operate owing to its being out of repair, have been eliminated.

"It will always be the case that some birds will at times lay outside the trap-nest. The important point to any one concerned in the accuracy of the records relates to the amount of this error."

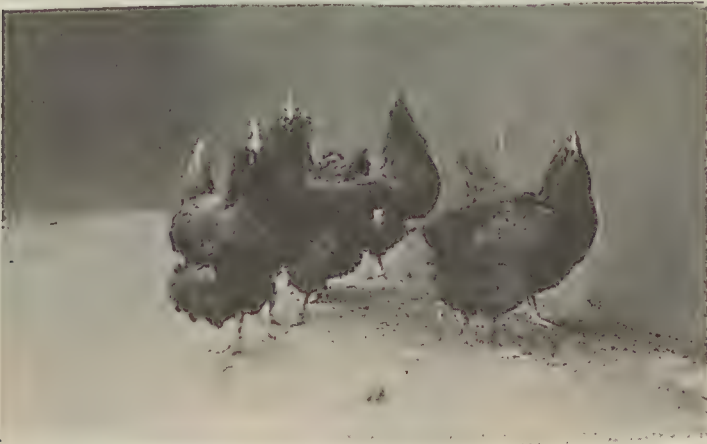
Comparative Tables.

Table I., on page 332, gives the percentage of eggs laid outside the traps in the 1919-20 competition, and Table II. gives the percentages laid outside the traps in the 1920-21 competition, which has just closed, and the comparison between the two years is decidedly interesting. The results this year are, I believe, the most accurate, so far as the "residual error" is concerned, that have ever been achieved in any part of the world, and reflect the utmost credit on Mr. Macauley and Mr. Coates, for



[V.P. Journal.]

Black Orpington Team Winners, Wet Mash, 1,434 eggs. (S. Andrew.)



[V.P. Journal.]

Team of Black Orpingtons, Second, Dry Mash, 1,276 eggs. (R. R. Christie.)

the close attention paid to the trap-nests throughout the competition. The final scores show that out of 77,685 eggs actually laid in the trap-nest section, only 622 eggs were laid outside the traps, representing 0.80 per cent., as against 3.29 last year.

As was the case in the preceding year, the first month was by far the worst, and the subsequent improvement was well maintained until the hot weather set in, before Christmas, when there was a tendency to lay outside the traps.

Climatic Conditions.

The competition opened with an exceptionally hot day for the season of the year, but after that the weather was very changeable for some time. A comparatively early spring was followed by a decidedly hot and dry summer. There were several heat waves, and temperatures of over 100 deg. Fahr., up to 112 deg. Fahr. were of frequent occurrence in the sheds, consequently the scores for the year were highly satisfactory.



Mr. J. Mickelburgh's Typical Black Orpington.

Weight of Eggs.

The average weight per dozen eggs shows a marked improvement upon the returns for the preceding year. While out of the 57 teams that completed the test, only 22 averaged 24 ozs., or over, per dozen; at the same time 25 other teams averaged over 23.8 ozs. per dozen, and only two teams fell below 23 ozs. per dozen, these two teams averaging 22.86 and 22.908 respectively, and the weighted average for all teams is a very slight fraction over the desired 24 ozs. per dozen. The prize for the greatest average weight of eggs was won by Mr. A. Siede's Langshans, which averaged 25.98 ozs. per dozen, Mr. G. McDonnell—who has been remarkably successful for a number of years—coming next with 24.996 ozs. per dozen.

Average Scores.

The average number of eggs per bird—excluding those that died—was 212 $\frac{3}{4}$ per bird throughout the teams' section, 222 eggs per bird in the single test section, and throughout the competition 216 eggs per bird, or exactly 18 dozen eggs per bird—a very satisfactory showing indeed.

Sale of Eggs.

The eggs were sold to Messrs. R. G. Wilson and Company, and realized 2s. 0 $\frac{1}{2}$ d. per dozen average price throughout the competition, the result being 36s. 9d. per bird for the sale of eggs, which is by far the highest return recorded since the inception of the competitions.

The prize for the highest market value of eggs was won by Mr. D. Gibson; his team's eggs realized £12 16s. 8 $\frac{1}{2}$ d., which is the highest ever recorded at Burnley, and works out at about £2 2s. 9d. per bird.

System of Feeding.

The birds fed on wet mash received the following ration—*by measure*—during the winter:—

Pollard	.. .. .	2 parts
Bran	.. .. .	1 $\frac{1}{2}$ "
Oat pollard	.. .. .	$\frac{1}{2}$ "

The dry mash was as follows:—

Wheat pollard	.. .. .	1 part
Wheat bran	.. .. .	1 "
Oat pollard	.. .. .	$\frac{1}{2}$ "

The grain ration was—

Wheat	.. .. .	3 parts
Maize	.. .. .	$\frac{1}{2}$ "
Oats	.. .. .	$\frac{1}{2}$ "

Bone charcoal was added at the rate of 2 $\frac{1}{2}$ lbs. per 100 lbs. mash, and salt was used, 4 ozs. per 100 birds.

During the spring and summer, $\frac{1}{4}$ part of pea meal took the place of $\frac{1}{2}$ part oat pollard, and the grain ration consisted of wheat only.

Greenstuff was fed heavily to all sections.

Meat.—The dry mash section received about $\frac{1}{2}$ oz. per bird three times a week.

The wet mash section received soup in the mash, and minced liver when available.

The following amounts were used during the competition:—

Wheat	.. .. .	435 bushels of 60 lbs.
Bran	.. .. .	420 " of 20 lbs.
Pollard	.. .. .	825 " of 20 lbs.
Oat pollard	.. .. .	15 cwt.
Pea meal	.. .. .	5 cwt.
Crushed maize	.. .. .	5 cwt.
Oats	.. .. .	6 bushels of 40 lbs.
Shell grit	.. .. .	2 $\frac{1}{2}$ tons.
Quartz grit	.. .. .	3 cwt.
Bone charcoal	.. .. .	4 cwt.
Epsom salts	.. .. .	56 lbs.

The total cost of Meat	.. .. .	£27 10 0
Onions	.. .. .	6 18 9
Merval (tonic)	.. .. .	8 0 0

SUMMARY OF REPORT.

A new official world's record for winter test was created, viz., 116 eggs for the four months.

The percentage of eggs laid outside the nests in the trap-nest section was 0.8 per cent., which is believed to be a world's record in accuracy.

The average price per dozen eggs throughout the year was 2s. 0½d. per dozen.

The average number of eggs laid per bird was 216.

The return per bird from the sale of eggs was £1 16s. 9d.

The cost of feed per bird was approximately 13s. 7d.

The profit per bird over the feed bill throughout the competition was 23s. 2d. per bird.

The average weight of eggs throughout the year for all birds just exceeded 24 ozs. per dozen.

Mr. D. Gibson's team of White Leghorns laid £12 16s. 8½d. worth of eggs for the competition.

COMMENTS ON COMPETITORS IN SINGLE TEST SECTION.

White Leghorns, Wet Mash.			
Pen			
1.	W. J. Swift ..	231 eggs.	} Both somewhat lacking in Leghorn type.
2.	„ ..	191 eggs.	
3.	Miss A. McPherson ..	272 eggs.	Good head and feather, slightly narrow in shoulder.
4.	„ ..	240 eggs.	Good bone and feather; flat in face, lacks crop capacity.
5.	J. C. Mickelborough ..	221 eggs.	Nice type throughout; insufficient webbing in feather.
6.	„ ..	174 eggs.	Weak face; soft in feather.
7.	C. D. Marshall ..	241 eggs.	Good head, bone, and feather; fails somewhat in front.
8.	„ ..	236 eggs.	Rather nice type; a little deficient in face and crop capacity.
9.	E. A. Lawson ..	237 eggs.	Fair face, good feather, rather upright tail.
10.	„ ..	257 eggs.	Good head, face, and eye; nice type throughout.
11.	J. H. Nicholls ..	153 eggs.	Lacks type throughout.
12.	„ ..	153 eggs.	Weak face; coarse in bone.
13.	G. G. Farm ..	201 eggs.	Trifle weak in face; rather soft in feather.
14.	„ ..	307 eggs.	Good face and bone, excellent body, hard feather, just enough comb.
15.	F. W. McPherson ..	177 eggs.	Rather out of balance throughout.
16.	„ ..	262 eggs.	Good bone and feather; poor comb.
17.	E. S. Jeffrey ..	204 eggs.	Rather sour expression.
18.	„ ..	243 eggs.	Good face and hard feather; slightly weak in front.
19.	Britannia P.F. ..	275 eggs.	Nice bird throughout; rather high in tail.
20.	„ ..	284 eggs.	Good eye and skull, with very close feather.
21.	B. Hall ..	126 eggs.	Weak throughout; soft in feather.
22.	„ ..	252 eggs.	Good eye and feather; heavy but well serrated comb.
23.	F. Wiles ..	281 eggs.	Nice front shoulders, good eye; slightly narrow over shoulder.
24.	„ ..	218 eggs.	Strong hen throughout, laying a good egg; trifle heavy in skull.

SINGLE TEST SECTION—*continued.*WHITE LEGHORNS, WET MASH—*continued.*

Pen			
25.	J. Nathan ..	201 eggs.	Good feather, fair face; has been broody.
26.	" ..	—	Died after laying 86 eggs.
27.	G. F. Wallran ..	228 eggs.	Narrow over saddle; weak in front.
28.	" ..	247 eggs.	Rather light eye, good texture comb, nice bone; fails in front.
29.	H. G. Lawrence ..	199 eggs.	Heavy comb; weak in eye.
30.	" ..	193 eggs.	Weak face; coarse comb.
31.	Jack Ryan ..	230 eggs.	Decent quality; but too fine throughout.
32.	" ..	—	Died after laying 169 eggs.
33.	G. Wilkinson ..	137 eggs.	Coarse in bone.
34.	" ..	282 eggs.	Hard in feather, fine eye, but weakly balanced body.
35.	Miss G. Morgan ..	222 eggs.	Trifle loose in feather; comb too large.
36.	" ..	254 eggs.	Good eye and shoulder.
37.	W. G. Werry ..	214 eggs.	Weak in front; good feather and bone.
38.	" ..	229 eggs.	Good feathered hen; lacks crop capacity.
39.	M. Whitley ..	240 eggs.	Good eye, rather fine in bone; fails in front.
40.	" ..	265 eggs.	Beautiful eye, good feather, slightly pinched in shoulder, otherwise good body.
41.	A. Smith ..	216 eggs.	Coarse skull; soft in feather.
42.	" ..	167 eggs.	Undesirable type; coarse throughout.
43.	L. Faulkner ..	205 eggs.	Weak front; rather hollow in face.
44.	" ..	250 eggs.	Fair head and face, nice type throughout, but brassy in plumage; broody.
45.	J. H. Duncan ..	215 eggs.	Lacks spring of ribs; narrow throughout.
46.	" ..	192 eggs.	Narrow throughout; lacks type.
47.	W. A. Adams ..	202 eggs.	Rather hollow face, narrow in shoulder, and loose feather.
48.	" ..	247 eggs.	Fair type; but heavy texture in comb.
49.	H. R. Cropley ..	227 eggs.	Pinches a bit over the saddle.
50.	" ..	269 eggs.	Hard feathered bird, nice eye, trifle narrow in shoulder.
51.	P. N. Tilley ..	234 eggs.	Good crop capacity; trifle weak in shoulder.
52.	" ..	285 eggs.	Lays large egg; good face and eye, with hard feather; rather lacks development.
53.	C. Ridley ..	228 eggs.	Neat, but too small and soft for breeding purposes.
54.	" ..	248 eggs.	Shows strength and stamina; but rather Minorca type.
55.	W. White ..	261 eggs.	Well balanced, good feather, and nice type; suffered from cold.
56.	" ..	258 eggs.	Hard feather; rather fine in bone.
57.	B. Brown ..	241 eggs.	Rather weak in face.
58.	" ..	230 eggs.	Just on small side; but should make fair breeder.

White Leghorns, Dry Mash.

Pen			
59.	Jack Ryan ..	237 eggs.	Both too fine throughout to make useful breeders:
60.	" ..	224 eggs.	
61.	J. W. Leyden ..	277 eggs.	Both fine texture and quality; rather lack stamina.
62.	" ..	235 eggs.	
63.	J. C. Mickelborough ..	222 eggs.	Nicely balanced bird; could be tighter in feather.
64.	" ..	210 eggs.	A little narrow over the saddle.
65.	B. Brown ..	264 eggs.	Both just fair type; rather high in front.
66.	" ..	241 eggs.	
67.	C. Ridley ..	251 eggs.	Good feather and texture; on the light side for stud purposes.
68.	" ..	258 eggs.	Good face and eye.

SINGLE TEST SECTION—*continued.*WHITE LEGHORNS, DRY MASH—*continued.*

Pen			
69.	McCormack and Kinzell	161 eggs.	Both strong hens, but soft in feather; moulted twice.
70.	"	149 eggs.	
71.	G. McDonnell	.. —	Both died.
72.	"	.. —	
73.	H. W. Smith	.. 54 eggs.	Had bad health; otherwise good appearance.
74.	"	.. 268 eggs.	Fair type, although rather narrow across the saddle.
75.	J. H. Duncan	.. 250 eggs.	Too small for stud purposes.
76.	"	.. 220 eggs.	Erect comb; too small.
77.	F. Gaskell	.. 228 eggs.	Very fair type; a little loose in feather.
78.	"	.. 275 eggs.	A good type to breed from.
79.	C. J. Corbould	.. —	Dead.
80.	"	.. 241 eggs.	Fair type throughout.
81.	H. Bunge	.. 121 eggs.	Weak throughout.
82.	"	.. 232 eggs.	Loose in feather; a shade coarse in type.
83.	Neatis P.F.	.. 281 eggs.	Good type throughout; tail carriage rather high.
84.	"	.. 246 eggs.	Soft in feather and flat in face.

Light Breeds other than Leghorns.

85.	Mrs. G. R. Bald	.. —	Died. Ancona.
86.	"	.. 191 eggs.	Ancona. Sour expression; persistent broody.
87.	Montuna P.F.	.. 191 eggs.	Inclines to the Hamburg in style and type.
88.	"	.. 237 eggs.	Nice Ancona type, somewhat narrow over the saddle.
89.	S. C. Handley	.. 214 eggs.	Fair type Sicilian Buttercup, with defective comb.
90.	"	.. 189 eggs.	Fair comb.

Orpingtons.

91.	R. R. Christie	.. 185 eggs.	Soft and fluffy feather.
92.	"	.. 269 eggs.	Nice quality, closely feathered, rather fine in substance.
93.	W. Cullen	.. 239 eggs.	Rather coarse type.
94.	"	.. —	Very fast layer; eggs under weight.
95.	C. C. Dunn	.. 247 eggs.	A nice type of bird, with good face and texture; side sprig on comb.
96.	"	.. 265 eggs.	A trifle narrow.
97.	Mrs. C. G. Viney	.. 232 eggs.	Inclined to coarseness in feather.
98.	"	.. 211 eggs.	Sour expression; light eye.
99.	Herbert Bros.	.. —	Dead.
100.	"	.. 196 eggs.	Coarse throughout.
101.	A. Siede and Son	.. 309 eggs.	Splendid texture of comb and wattle, close feather and good bone; type could be improved.
102.	"	.. 143 eggs.	Indifferent type.
103.	H. W. Lyndon	.. 113 eggs.	Coarse type.
104.	"	.. 255 eggs.	Good bone and close feather.
105.	J. W. Leyden	.. 219 eggs.	Fails in lobe and feather.
106.	"	.. —	Died.
107.	D. Hall	.. 256 eggs.	Strong, hardy, close feathered hen; lacks Orpington type.
108.	"	.. 181 eggs.	Loose feather; coarse throughout
109.	J. Orde	.. 174 eggs.	Broody.
110.	"	.. 203 eggs.	Weak in face.

SINGLE TEST SECTION—*continued.*ORPINGTONS—*continued.*

Pen			
111. W. Snewin ..	..	201 eggs.	} Both broody several times.
112. „ ..	..	161 eggs.	
113. Tynwald P.F. ..	..	213 eggs.	Fair head; loose in feather.
114. „ ..	..	252 eggs.	Nice all round bird, good textured comb, rather loose feather.
115. E. A. Cochran ..	..	241 eggs.	Too much Minorca type.
116. „ ..	..	242 eggs.	Good head and fine bone, but loose in feather.
117. P. Walker and Son ..	..	—	Died.
118. „ ..	..	239 eggs.	Lays a good egg, and was going well in the Competition, but adversely affected by the hot weather at Christmas.
119. Red Mill P.F. ..	..	245 eggs.	Good crop capacity, but cuts away a little just below crop.
120. „ ..	..	233 eggs.	Nice head and close feather.
121. J. H. Nicholls ..	..	—	Returned.
122. „ ..	..	197 eggs.	Fair Orpington type, but loose in feather.
123. G. B. Brown and Son ..	..	223 eggs.	Good crop capacity; rather thick and short.
124. „ ..	..	181 eggs.	Weak in face.
125. F. G. Fereday ..	..	304 eggs.	Splendid feather quality, good bone; just a tendency to Minorca type.
126. „ ..	..	163 eggs.	Loose in feather.
127. J. C. Mickelborough ..	..	204 eggs.	Coarse, and weak in face.
128. „ ..	..	285 eggs.	Good Orpington hen; best type bird in the Single Test Pens.
129. J. B. Nicoll ..	..	236 eggs.	Rather weak face; high tail.
130. „ ..	..	248 eggs.	Nice expression; close feather.

Heavy Breeds other than Orpingtons.

131. Jas. Ryan ..	..	243 eggs.	Good strong-faced R.I. Red, with nice texture.
132. „ ..	..	265 eggs.	Just a little lacking in size and type; good bone.
133. J. Ravenscroft ..	..	246 eggs.	Silver Wyandotte. Neat head, good quality feather, with rather uneven lacing; fails just a little in front, but nice laying type.
134. „ ..	..	190 eggs.	Fails in front and lacks type.
135. A. Siede ..	..	168 eggs.	Langshan. Sunken eye; loose in feather.
136. „ ..	..	—	Died.
137. McCormack and Kinzell ..	..	248 eggs.	Nice type R.I. Red, trifle light in lobe; broke in moult during Christmas heat wave, or might have put up a higher score.
138. „ ..	..	279 eggs.	Good in bone, full eye, feather quality good; colour just fair.
139. P. Walker and Son ..	..	233 eggs.	A very typical Faverolles right through; comb might be better.
140. „ ..	..	—	Returned.
141. J. W. Richards ..	..	156 eggs.	Coarse throughout. R.I. Red.
142. „ ..	..	251 eggs.	Good face, but white on lobe, fair egg type, colour poor.
143. H. Miller ..	..	204 eggs.	R.I. White. Fair head; but just on coarse side for egg production.
144. „ ..	..	103 eggs.	Broad skull and general meat-producing qualities.
145. M. Whitley ..	..	218 eggs.	} A pair of good quality R.I. Reds; suffered from broodiness.
146. „ ..	..	214 eggs.	
147. Miss H. Koch ..	..	—	} Died. Both out of place at an egg-laying competition. R.I. Whites.
148. „ ..	..	43 eggs.	
149. G. McDonnell ..	..	213 eggs.	Nice eye and feather; trifle coarse.
150. „ ..	..	259 eggs.	Bone and feather good; rather long in back and head.

TABLE I.
Monthly Results 1919-20 Competition.
PERCENTAGES OF EGGS LAID OUTSIDE THE TRAPNESTS.

	Light Breeds—Wet Mash.			Light Breeds—Dry Mash.			Heavy Breeds—Wet Mash.			Heavy Breeds—Dry Mash.			Weighted Average.		
	Eggs Laid.	Un-allotted.	Per cent. Un-allotted.	Eggs Laid.	Un-allotted.	Per cent. Un-allotted.	Eggs Laid.	Un-allotted.	Per cent. Un-allotted.	Eggs Laid.	Un-allotted.	Per cent. Un-allotted.	Total Eggs Laid.	Un-allotted.	Per cent. Un-allotted.
April .. (1-30, 30 days) ..	3,245	301	9.27	1,417	177	12.49	1,329	387	29.11	766	190	24.93	6,757	1,055	15.61
May .. (1-28, 28 days) ..	3,138	154	4.90	1,616	177	10.95	1,528	246	16.09	1,013	160	15.79	7,295	737	10.10
June .. (May 19-July 2, 35 days) ..	3,881	247	6.36	2,014	129	6.4	2,391	312	13.04	1,425	140	9.82	9,711	828	8.52
July .. (July 3-31, 29 days) ..	3,561	181	5.08	2,101	67	3.18	1,986	203	10.22	1,089	76	6.42	8,737	527	6.03
August .. (Aug. 1-Sept. 3, 34 days) ..	4,425	81	1.83	3,174	35	1.10	1,689	3	0.17	1,592	66	4.16	10,880	185	1.70
September .. (Sept. 4-Oct. 1, 28 days) ..	5,004	25	0.49	2,920	4	0.13	2,015	9	0.44	1,304	1	0.07	11,273	39	0.34
October .. (2-29, 28 days) ..	4,935	10	0.20	2,903	3	0.10	1,873	9	0.48	1,212	6	0.49	10,923	28	0.25
November .. (Oct. 30-Nov. 26, 28 days) ..	4,792	12	0.25	2,741	18	0.65	1,661	23	1.38	1,020	15	1.47	10,214	68	0.66
December .. (Nov. 27-Dec. 31, 35 days) ..	5,435	24	0.44	3,290	14	0.42	1,881	17	0.90	1,088	18	1.65	11,694	73	0.62
January .. (1-29, 29 days) ..	4,033	27	0.66	2,311	15	0.64	1,433	29	2.02	796	24	3.01	8,573	95	1.10
February .. (Jan. 30-Feb. 25, 27 days) ..	4,019	30	0.74	2,175	10	0.45	1,352	12	0.88	780	6	0.77	8,326	58	0.69
March .. (Feb. 26-March 31, 35 days) ..	4,010	11	0.27	2,214	4	0.18	1,401	4	0.28	875	5	0.57	8,500	24	0.28
Total ..	50,478	1,103	2.18	28,876	633	2.26	20,569	1,254	6.09	12,960	707	5.45	112,883	3,717	3.29

TABLE II.
Monthly Results, 1920-21 Competition.
PERCENTAGES OF EGGS LAID OUTSIDE THE TRAPNESTS.

	Light Breeds—Wet Mash.			Light Breeds—Dry Mash.			Heavy Breeds—Wet Mash.			Heavy Breeds—Dry Mash.			Weighted Average		
	Eggs Laid.	Un- allotted.	Per cent. Un- allotted.	Eggs Laid.	Un- allotted.	Per cent. Un- allotted.	Eggs Laid.	Un- allotted.	Per cent. Un- allotted.	Eggs Laid.	Un- allotted.	Per cent. Un- allotted.	Total Eggs Laid.	Un- allotted.	Per cent. Un- allotted.
April .. (1-28, 28 days)	2,080	56	2.69	814	23	2.83	980	18	1.84	515	8	1.55	4,389	105	2.39
May .. (Apr. 29-June 2, 35 days)	2,722	23	0.84	1,128	7	0.62	1,375	16	1.16	701	1	0.14	5,926	47	0.79
June .. (June 3-30, 28 days)	2,453	14	0.57	1,019	6	0.57	1,543	12	0.78	587	1	0.17	5,632	33	0.59
July .. (July 1-28, 28 days)	2,571	29	1.13	1,383	4	0.29	1,771	19	1.07	669	1	0.15	6,394	53	0.83
August .. (July 29-Sept. 1, 35 days)	3,850	15	0.39	1,841	3	0.16	2,424	4	0.17	901	2	0.22	9,016	24	0.27
September .. (Sept. 2-29, 28 days)	3,534	15	0.42	1,686	3	0.18	1,954	7	0.36	612	..	0.0	7,846	25	0.32
October .. (Sept. 30-Oct. 27, 28 days)	3,666	10	0.27	1,721	6	0.35	1,849	13	0.70	577	5	0.87	7,813	34	0.44
November .. (Oct. 28-Dec. 1, 35 days)	4,234	2	0.28	2,099	6	0.29	1,816	4	0.22	499	..	0.0	8,648	22	0.25
December .. (Dec. 2-Jan. 5, 35 days)	3,567	42	1.18	1,853	17	0.92	1,517	50	3.30	469	14	2.99	7,406	123	1.66
January .. (Jan. 6-Feb. 2, 28 days)	2,631	21	0.79	1,448	8	0.55	1,189	29	2.44	456	2	0.44	5,744	60	1.04
February .. (Feb. 3-Mar. 2, 28 days)	2,305	22	0.95	1,211	12	0.99	1,109	19	1.71	187	2	1.07	4,812	55	1.04
March .. (3-31, 29 days)	1,773	27	1.52	948	5	0.53	1,034	8	0.77	304	1	0.33	4,059	41	1.01
Total ..	35,466	286	0.81	17,181	100	0.58	18,561	199	1.07	6,477	37	0.57	77,685	622	0.80

FINAL RESULTS.

Department of Agriculture, Victoria.

TENTH VICTORIAN EGG-LAYING COMPETITION, CONDUCTED AT BURNLEY SCHOOL OF PRIMARY AGRICULTURE AND HORTICULTURE, COMMENCED 1ST APRIL, 1920, CONCLUDED 31ST MARCH, 1921.

RECORD OF EGGS LAID TO THE 31st MARCH, 1921.

Section A.—Groups of Six Birds Trapped.

Pen No.	Competitor.	Pen.						Total to 31st Mar. 1921.
		1.	2.	3.	4.	5.	6. (x).	
Class 1.—Light Breeds (White Leghorns), Wet Mash.								
57	D. Gibson ..	266	258	284	245	244	185	1,482
26	A. Davey ..	238	232	253	270	195	244	1,432
38	G. McDonnell ..	254	242	(d) 167	203	265	258	1,399
44	W. T. Turner ..	244	198	249	185	170	201	1,309
39	Herbert Bros. ..	151	244	291	102	(d) 198	266	1,299
36	Neatis P.F. ..	243	(d) 182	237	220	213	194	1,293
43	J. Mooney ..	201	238	204	199	196	247	1,288
54	G. Pocknall ..	215	249	(d) 140	173	252	240	1,283
27	P. N. Tilley ..	234	191	176	159	245	248	1,262
55	C. Ridley ..	163	239	20	205	235	191	1,261
50	A. McCall ..	226	184	196	186	240	211	1,253
51	Montuna P.F. ..	(d) 168	(d) 166	184	241	(d) 192	282	1,242
30	J. H. Chirnside ..	216	143	221	211	228	207	1,234
33	J. W. Leyden ..	214	206	199	192	167	227	1,214
31	W. G. Werry ..	232	223	(d) 151	208	227	159	1,205
35	H. Miller ..	228	20	209	231	244	261	1,197
41	H. Schmutter ..	154	238	(d) 144	252	236	(d) 168	1,196
47	Mrs. C. G. Viney ..	194	163	152	228	(d) 185	245	1,182
32	Murphy Bros. ..	198	178	212	174	211	173	1,152
52	W. G. Swift ..	221	126	82	240	195	230	1,107
28	N. Meyers ..	210	11	215	219	214	229	1,102
29	G. White ..	237	165	170	196	231	(d) 90	1,092
45	Miss M. T. Kidd ..	214	(d) 69	(d) 205	208	183	209	1,092
34	E. Zoellner ..	187	142	187	189	132	210	1,088
40	McLeod Bros. and Anderson ..	168	196	117	153	208	195	1,042
53	A. Scott ..	67	91	220	141	226	245	1,022
48	F. Gaskell ..	209	200	36	101	167	268	983
56	Mrs. A. Poole ..	(d) 49	207	(d) 203	215	167	130	977
42	Fulham Park ..	(d) 76	233	186	29	170	233	932
Class 2.—Light Breeds (White Leghorns, except Pen 61, Anconas), Dry Mash.								
66	N. Meyers ..	268	252	283	144	262	259	1,474
70	G. McDonnell ..	215	285	229	223	259	227	1,444
69	J. Ogilvie ..	261	234	177	237	243	283	1,437
62	P. N. Tilley ..	205	255	191	295	228	249	1,431
67	Herbert Bros. ..	260	(d) 217	253	252	241	(d) 194	1,426
59	G. White ..	276	244	119	254	196	252	1,347
58	A. Enticknap ..	177	232	225	226	231	242	1,343
60	J. W. Leyden ..	260	240	200	192	233	170	1,302
64	C. Ridley ..	253	229	..	254	266	247	1,260
63	F. Gaskell ..	(d) 177	240	170	217	221	205	1,248
68	Fulham Park ..	(d) —	218	260	248	228	240	1,200
61	Mrs. G. R. Bald ..	175	174	172	181	214	215	1,137
65	H. Bunge ..	233	122	196	216	168	192	1,132

NOTE.—Eggs laid outside nest denoted thus (x).
Death of birds marked thus (d).

FINAL RESULTS—continued.**SECTION A.—GROUPS OF SIX BIRDS TRAPNESTED—continued.**

Pen No.	Competitor.	Hen.						(x).	Total to 31st March, 1921.
		1.	2.	3.	4.	5.	6.		
Class 3.—Heavy Breeds (Black Orpingtons, except Pen 87, R.I. Whites, and Pen 80, Langshans), Wet Mash.									
75	S. Andrew ..	277	279	250	218	169	238	3	1,434
78	Deepspring Poultry Farm ..	190	240	233	233	242	197	5	1,340
71	Marville P.F. ..	209	145	241	242	253	184	14	1,288
73	J. C. Mickelborough ..	247	238	160	147	238	173	49	1,252
72	Jas. A. Dunn ..	227	261	192	268	286	..	1	1,235
76	L. W. Parker ..	215	170	178	165	234	260	11	1,233
79	R. R. Christie ..	193	251	144	(d) 226	241	166	4	1,225
80	A. Siede ..	154	160	171	271	205	196	2	1,159
77	F. S. Hawk ..	179	158	152	229	228	160	9	1,115
87	Ern. Muller ..	150	152	190	163	169	194	7	1,025
74	J. W. Leyden ..	210	172	..	221	170	237	..	1,010
82	Herbert Bros. ..	207	112	105	219	170	147	48	1,008
83	E. Pearson ..	163	192	165	151	131	179	27	1,008
86	C. E. Graham ..	..	248	..	271	241	(d) 193	..	953

Class 4.—Heavy Breeds (Black Orpingtons), Dry Mash.

94	Jas. A. Dunn ..	253	223	228	236	228	213	3	1,384
92	R. R. Christie ..	205	206	249	231	211	167	7	1,276
89	J. C. Mickelborough ..	229	176	135	154	(d) 149	186	9	1,038
95	Marville P.F. ..	234	167	116	207	186	(d) 114	..	1,024
93	J. W. Leyden ..	197	(d) 124	..	(d) 156	201	191	11	880

NOTE.—Eggs laid outside nest denoted thus (x).
Death of birds marked thus (d).

Section B.—Individual Birds.

Pen No.	Competitor.	Breed.	Total to 31st March, 1921.	Pen No.	Competitor.	Breed.	Total to 31st March, 1921.
Class 1.—Leghorns, Wet Mash.							
14	G. G. Farm ..	White Leghorns	307	56	W. White ..	White Leghorns	258
52	P. N. Tilley ..	..	285	10	E. A. Lawson ..	..	257
20	Britannia P.F. ..	..	284	36	Miss G. Morgan ..	..	254
34	G. Wilkinson ..	..	282	22	B. Hall ..	..	252
23	F. Wiles ..	..	281	44	L. Faulkner ..	..	250
19	Britannia P.F. ..	..	275	39	M. Whitley ..	..	249
3	Miss A. McPherson ..	..	272	54	C. Ridley ..	..	248
50	H. R. Cropley ..	..	269	28	G. F. Walbran ..	..	247
40	M. Whitley ..	..	265	48	W. A. Adams ..	..	247
16	F. W. McPherson ..	..	262	18	E. S. Jeffrey ..	..	243
55	W. White ..	..	261	57	B. Brown ..	..	241

FINAL RESULTS—continued.**SECTION B.—INDIVIDUAL BIRDS—continued.**

Pen No.	Competitor.	Breed.	Total to 31st March, 1921.	Pen No.	Competitor.	Breed.	Total to 31st March, 1921.

CLASS 1.—LEGHORNS, WET MASH—continued.

7	C. D. Marshall	White Leghorns	241	43	L. Faulkner ..	White Leghorns	205
4	Miss A. McPherson	"	240	17	E. S. Jeffrey ..	"	204
9	E. A. Lawson ..	"	237	47	W. A. Adams ..	"	202
8	C. D. Marshall	"	236	13	G. G. Farm ..	"	201
51	P. N. Tilley ..	"	231	25	J. Nathan ..	"	201
1	W. G. Swift ..	"	231	29	H. G. Lawrance ..	"	199
58	B. Brown ..	"	230	30	H. G. Lawrance ..	"	193
31	Jack Ryan ..	"	230	46	J. H. Duncan ..	"	192
38	W. G. Werry ..	"	229	2	W. G. Swift ..	"	191
53	C. Ridley ..	"	228	15	F. W. McPherson ..	"	177
27	G. F. Walbran ..	"	228	5	J. C. Mickel- borough	"	174
49	H. R. Cropley ..	"	227	32	Jack Ryan ..	" (d)	169
35	Miss G. Morgan ..	"	222	42	A. Smith ..	"	167
6	J. C. Mickel- borough	"	221	11	J. H. Nichols ..	"	153
24	F. Wiles ..	"	218	12	J. H. Nichols ..	"	153
41	A. Smith ..	"	216	33	G. Wilkinson ..	"	137
45	J. H. Duncan ..	"	215	21	B. Hall ..	"	126
37	W. G. Werry ..	"	214	26	J. Nathan ..	" (d)	86

Class 2.—Leghorns, Dry Mash.

83	Neatis P.F. ..	White Leghorns	281	60	Jack Ryan ..	White Leghorns	224
61	J. W. Leyden ..	"	277	63	J. C. Mickel- borough	"	222
78	F. Gaskell ..	"	275	76	J. H. Duncan ..	"	220
74	H. W. Smith ..	"	268	64	J. C. Mickel- borough	"	210
65	B. Brown ..	"	264	69	McCormack and Kinzell	"	161
68	C. Ridley ..	"	258	70	McCormack and Kinzell	"	149
67	C. Ridley ..	"	251	72	G. McDonnell ..	" (d)	126
75	J. H. Duncan ..	"	250	81	H. Bunge ..	"	121
84	Neatis P.F. ..	"	246	71	G. McDonnell ..	" (d)	89
66	B. Brown ..	"	241	73	H. W. Smith ..	"	54
80	C. I. Corbould ..	"	241	79	C. I. Corbould ..	" (d)	3
59	Jack Ryan ..	"	237				
62	J. W. Leyden ..	"	235				
82	H. Bunge ..	"	232				
77	F. Gaskell ..	"	228				

Class 3.—Light Breeds other than Leghorns, Wet Mash.

88	Montuna P.F. ..	Ancona	237	87	Montuna P.F. ..	Ancona	191
89	S. C. Handley ..	Sicilian	214	90	S. C. Handley ..	Sicilian	189
		Buttercup				Buttercup	
86	Mrs. G. R. Bald	Ancona	191	85	Mrs. G. R. Bald	Ancona	109
						(d)	

NOTE.—Leath of birds marked thus (d).

FINAL RESULTS—continued.**SECTION B.—INDIVIDUAL BIRDS—continued.**

Pen No.	Competitor.	Breed.	Total to 31st March, 1921.	Pen No.	Competitor.	Breed.	Total to 31st March, 1921.

Class 4.—Orpingtons, Any Colour, Wet Mash.

101	A. Siede and Son	Black Orpingtons	309	105	J. W. Leyden ..	Black Orpingtons	219
125	F. G. Fereday ..	"	304	113	Tynwald P.F. ..	"	213
128	J. C. Mickel- brough	"	285	98	Mrs. C. G. Viney	"	211
92	R. R. Christie ..	"	269	127	J. C. Mickel- brough	"	204
96	C. C. Dunn ..	"	265	110	J. Orde	"	203
107	D. Hall ..	"	256	111	W. Snewin ..	"	201
103	H. W. Lyndon	"	255	122	J. H. Nichols ..	"	197
114	Tynwald P.F. ..	"	252	100	Herbert Bros. ..	"	196
130	J. B. Nicoll ..	"	248	99	Herbert Bros. ..	" (d)	187
95	C. C. Dunn ..	"	247	91	R. R. Christie ..	"	185
119	Red Mill P.F. ..	"	245	108	D. Hall ..	"	181
116	E. A. Cochran ..	"	242	124	G. B. Brown and Son	"	181
115	E. A. Cochran ..	"	241	109	J. Orde	"	174
93	W. Cullen ..	"	239	126	F. G. Fereday ..	"	163
118	P. Walker and Son	"	239	112	W. Snewin ..	"	161
129	J. B. Nicoll ..	"	236	106	J. W. Leyden ..	" (d)	156
120	Red Mill P.F. ..	"	233	102	A. Siede and Son	"	143
97	Mrs. C. G. Viney	"	232	117	P. Walker and Son	" (d)	129
123	G. B. Brown and Son	"	223	104	H. W. Lyndon	"	113

Class 5.—Heavy Breeds other than Orpingtons, Wet Mash.

138	McCormack and Kinzell	R.I.R.	279	146	M. Whitley ..	R.I.R.	214
132	Jas. Ryan ..	"	265	149	G. McDonnell ..	R.I.W.	213
150	G. McDonnell ..	R.I.W.	259	143	H. Miller ..	"	204
142	J. W. Richards	R.I.R.	251	134	J. Ravenscroft ..	S.W.	190
137	McCormack and Kinzell	"	248	135	A. Siede ..	Langshan	168
133	J. Ravenscroft	S.W.	246	141	J. W. Richards	R.I.R.	156
131	Jas. Ryan ..	R.I.R.	243	136	A. Siede ..	Langshan	140
139	P. Walker and Son	Faverolle	233			(d)	
145	M. Whitley ..	R.I.R.	218	147	Miss H. Koch ..	R.I.W.	113
						(d)	
				144	H. Miller ..	"	103
				148	Miss H. Koch ..	"	43

NOTE.—Deaths of birds marked thus (d).

WEIGHT OF EGGS.

Pen No.	Name.	Number of Eggs.	Weight of Eggs.	Average Weight of Egg.	Average Weight per Dozen.
			oz.	oz.	oz.
Class 1.—Light Breeds, Wet Mash.					
26	A. Davey	1,432	2,899½	2·024	24·288
27	P. N. Tilley	1,262	2,613½	2·07	24·84
28	N. Meyers	1,102	2,197	1·993	23·916
29	G. White	1,092	2,187½	2·003	24·036
30	J. H. Chirnside	1,234	2,451½	1·986	23·832
31	W. G. Werry	1,205	2,394	1·986	23·832
32	Murphy Bros.	1,152	2,296½	1·993	23·916
33	J. W. Leyden	1,214	2,484½	2·046	24·552
34	E. Zoellner	1,088	2,210	2·031	24·372
35	H. Miller	1,197	2,388	1·994	23·928
36	Neatis Poultry Farm	1,293	2,579½	1·994	23·928
37	(Withdrawn)				
38	G. McDonnell	1,392	2,900½	2·083	24·996
39	Herbert Bros.	1,299	2,614½	2·012	24·144
40	McLeod Bros. and Anderson	1,042	2,134	2·047	24·564
41	H. Schmutter	1,196	2,418½	2·022	24·264
42	Fulham Park	932	1,860	1·995	23·940
43	J. Mooney	1,288	2,571½	1·996	23·952
44	W. T. Turner	1,309	2,600½	1·986	23·832
45	Miss M. T. Kidd	1,092	2,166½	1·983	23·796
46	(Disqualified)				
47	Mrs. C. G. Viney	1,182	2,339	1·978	23·736
48	F. Gaskell	983	1,928½	1·961	23·532
49	(Withdrawn)				
50	A. McCall	1,253	2,545	2·031	24·372
51	Montuna Poultry Farm	1,242	2,480	1·996	23·952
52	W. G. Swift	1,107	2,215½	2·001	24·012
53	A. Scott	1,022	2,025	1·981	23·772
54	G. Pocknall	1,283	2,531½	1·973	23·676
55	C. Ridley	1,261	2,508½	1·989	23·868
56	Mrs. A. Poole	977	1,952	1·997	23·964
57	D. Gibson	1,482	2,952½	1·992	23·904

Class 2.—Light Breeds, Dry Mash.

58	A. Enticknap	1,343	2,683	1·997	23·964
59	G. White	1,347	2,710½	2·012	24·144
60	J. W. Leyden	1,302	2,622	2·013	24·156
61	Mrs. G. R. Bald	1,137	2,267½	1·994	23·928
62	P. N. Tilley	1,431	2,911½	2·034	24·408
63	F. Gaskell	1,248	2,457	1·968	23·616
64	C. Ridley	1,260	2,514½	1·995	23·940
65	H. Bunge	1,132	2,271½	2·006	24·072
66	N. Meyers	1,474	2,934	1·99	23·88
67	Herbert Bros.	1,426	2,838	1·99	23·88
68	Fulham Park	1,200	2,397	1·997	23·964
69	J. Ogilvie	1,437	2,853	1·985	23·820
70	G. McDonnell	1,444	2,885½	1·998	23·976

WEIGHT OF EGGS—*continued.*

Pen No.	Name.	Number of Eggs.	Weight of Eggs.	Average Weight of Egg.	Average Weight per Dozen.
			oz.	oz.	oz.

Class 3.—Heavy Breeds, Wet Mash.

71	Marville Poultry Farm	1,288	2,562½	1·989	23·868
72	Jas. A. Dunn (1 bird disqualified)				
73	J. C. Mickelborough	1,252	2,505½	2·001	24·012
74	J. W. Leyden (1 bird disqualified)				
75	S. Andrew	1,434	2,762½	1·926	23·112
76	L. W. Parker	1,233	2,521	2·044	24·528
77	F. S. Hawk	1,115	2,261½	2·028	24·336
78	Deepspring Poultry Farm	1,340	2,554	1·905	22·860
79	R. R. Christie	1,225	2,448½	1·998	23·976
80	A. Siede	1,159	2,509½	2·165	25·980
81	(Disqualified)				
82	Herbert Bros.	1,008	2,089	2·072	24·864
83	E. Pearson	1,008	2,021	2·004	24·048
84	(Disqualified)				
85	(Disqualified)				
86	C. E. Graham (2 birds disqualified)				
87	Ern. Muller	1,025	2,085¾	2·034	24·408

Class 4.—Heavy Breeds, Dry Mash.

88	(Disqualified)				
89	J. C. Mickelborough	1,038	2,055½	1·98	23·76
90	(Withdrawn)				
91	(Disqualified)				
92	R. R. Christie	1,276	2,539½	1·99	23·88
93	J. W. Leyden (1 bird disqualified)				
94	Jas. A. Dunn	1,384	2,643	1·909	22·908
95	Marville Poultry Farm	1,024	2,046	1·998	23·976

PRIZE LIST.

For the greatest total number of eggs laid by a pen in each Class of Sections "A" and "B":—

Section A.—Groups of Six Birds.

Class 1.—Light Breeds.—Wet Mash.

- 1st Prize, Champion Certificate .. D. Gibson, 126 Dundas-street, Thornbury (1,482 eggs).
 2nd Prize, Government Certificate .. A. Davey, "Inverurie," Yarragon (1,432 eggs).
 3rd Prize, Government Certificate .. G. McDonnell, 150 Camberwell-road, Auburn (1,392 eggs).

Class 2.—Light Breeds.—Dry Mash.

- 1st Prize, Champion Certificate .. N. Meyers, "Stapley," Queen-avenue, Glen Huntly (1,474 eggs).
 2nd Prize, Government Certificate .. G. McDonnell, 150 Camberwell-road, Auburn (1,444 eggs).
 3rd Prize, Government Certificate .. J. Ogilvie, Woomack-road, Murrumbidgee (1,437 eggs).

Class 3.—Heavy Breeds.—Wet Mash.

- 1st Prize, Champion Certificate .. S. Andrew, 10 Lysterville-avenue, Malvern (1,434 eggs).
 2nd Prize, Government Certificate .. Deepspring Poultry Farm (R. W. Shellard), Daxlesford (1,340 eggs).
 3rd Prize, Government Certificate .. Marville Poultry Farm (A. H. Dumaresq), South-road, Moorabbin (1,288 eggs).

Class 4.—Heavy Breeds.—Dry Mash.

- 1st Prize, Champion Certificate .. Jas. A. Dunn, Meenyan (1,384 eggs).
 2nd Prize, Government Certificate .. R. R. Christie (St. Elmo Poultry Farm), Bentleigh (1,276 eggs).
 3rd Prize, Government Certificate .. J. C. Mickelburgh (All Varieties Poultry Farm), Cheltenham (1,038 eggs).

Section B.—Individual Birds.**Class 1.—Leghorns.—Wet Mash.**

- 1st Prize, Champion Certificate .. G. G. Stud Farm (T. Goodisson), Lucan-street, Bendigo (307 eggs).
 2nd Prize, Government Certificate .. P. N. Tilley, 3 Campbell-road, Balwyn (285 eggs).
 3rd Prize, Government Certificate .. Britannia Poultry Farm (G. E. Harse), Yarra Junction (284 eggs).

Class 2.—Leghorns.—Dry Mash.

- 1st Prize, Champion Certificate .. Neatis Poultry Farm (Carter and Earle), Hallam (281 eggs).
 2nd Prize, Government Certificate .. J. W. Levdon, Sunbury (277 eggs).
 3rd Prize, Government Certificate .. F. Gaskell, 17 Kelvin-grove, Armadale (275 eggs).

Class 3.—All Light Breeds other than Leghorns.—Wet Mash.

- 1st Prize, Champion Certificate .. Montuna Poultry Farm (A. K. and H. S. Luke), Beaconsfield (237 eggs).
 2nd Prize, Government Certificate .. S. C. Handley, "Barrowby", Cranbourne-road, Dandenong (214 eggs).
 3rd Prize, Government Certificate .. Mrs. G. R. Bald, Sefton-place, East Camberwell, and Montuna Poultry Farm (A. K. and H. S. Luke), Beaconsfield (191 eggs).

Class 4.—Orpingtons, any colour.—Wet Mash.

- 1st Prize, Champion Certificate .. A. Siede & Sons (Highbett Poultry Farm), "Devondale," Point Nepean-road, Moorabbin (309 eggs).
 2nd Prize, Government Certificate .. F. G. Fereday, 4 Ross-street, Northcote South (304 eggs).
 3rd Prize, Government Certificate .. J. C. Mickelburgh (All Varieties Poultry Farm), Herald-street, Cheltenham (285 eggs).

Class 5.—All Heavy Breeds other than Orpingtons.—Wet Mash.

- 1st Prize, Champion Certificate .. McCormack & Kinzell, 5 Wigton-street, Ascot Vale (279 eggs).
 2nd Prize, Government Certificate .. Jas. Ryan, 33 Davis-street, Coburg (265 eggs).
 3rd Prize, Government Certificate .. G. McDonnell, 150 Camberwell-road, Auburn (259 eggs).

For the greatest total number of eggs laid by individual birds in each Class of Section "A."

Class 1.—Light Breeds.—Wet Mash.

- 1st Prize, Champion Certificate .. Herbert Bros., Diamond Creek (291 eggs).
 2nd Prize, Government Certificate ... D. Gibson, 126 Dundas-street, Thornbury (284 eggs).
 3rd Prize, Government Certificate .. Montuna Poultry Farm (A. K. & H. S. Luke), Beaconsfield (282 eggs).

Class 2.—Light Breeds.—Dry Mash.

- 1st Prize, Champion Certificate .. P. N. Tilley, 3 Campbell-road, Balwyn (295 eggs).
 2nd Prize, Government Certificate .. G. McDonnell, 150 Camberwell-road, Auburn (285 eggs).
 3rd Prize, Government Certificate .. N. Meyers, "Stapley," Queens-avenue, Glen Huntly, and J. Ogilvie, Woomack-road, Murrumbidgee (283 eggs).

Class 3.—Heavy Breeds.—Wet Mash.

- 1st Prize, Champion Certificate .. Jas. A. Dunn, Meeniyan (286 eggs).
 2nd Prize, Government Certificate .. S. Andrew, 10 Lysterville-avenue, Malvern (279 eggs).
 3rd Prize, Government Certificate .. S. Andrew, 10 Lysterville-avenue, Malvern (277 eggs).

Class 4.—Heavy Breeds.—Dry Mash.

- 1st Prize, Champion Certificate .. Jas. A. Dunn, Meeniyan (253 eggs).
 2nd Prize, Government Certificate .. R. R. Christie, St. Elmo Poultry Farm, Bentleigh (249 eggs).
 3rd Prize, Government Certificate .. Jas. A. Dunn, Meeniyan (236 eggs).

For the pen which shows the greatest average weight per dozen eggs laid:—

Section A.—Groups of Six Birds.

- 1st Prize, Government Certificate .. A. Siede, 97 Stawell-street, Burnley, 25.98 ozs. per dozen.

For the pen the eggs of which realized the highest market value throughout the competition:—

Section A.—Groups of Six Birds.

- 1st Prize, Government Certificate .. D. Gibson, 126 Dundas-street, Thornbury, (pen 57), 1,482 eggs; value, £12 16s. 8½d.

REGISTRATION OF STALLIONS.

First Annual Report under the Horse Breeding Act.

W. A. N. Robertson, B.V.Sc., Chief Veterinary Inspector.

Probably no more opportune year could have been found for the introduction of the Horse Breeding Act than that just closed. A variety of circumstances have brought about a condition of stagnation in the horse-breeding industry, consequently in refusing registration to any horses considered as unfit no such hardship was caused to any breeder as would have been the case in a year of activity. That the period of stagnation will not be of long duration is indicated by the highly satisfactory figures at which stallions have been changing hands in the meantime, and the good prices which have been commanded by horses of suitable type on the open market. The fact that breeding has been curtailed during the past few years has resulted in a scarcity of good young workers coming forward, and the deficient supply will cause more attention to be paid to breeding in the near future. As the non-certificated horse is no longer available for stud purposes, the keeping of a registered stallion will become a paying business, and breeders will be enabled to invest with some sense of security in a stallion suitable for his particular district.

Though in some quarters the registration of stallions was foredoomed to failure, the sound common-sense of breeders has been once more exemplified, and the benefits to be derived by the removal of uncertificated stallions from the stud has been fully appreciated, with the result that after the first year's experience the Act can be pronounced a complete success.

As was to be expected with the introduction of a new measure, numerous difficulties had to be faced, but none of these was found to be insurmountable. The greatest cause for complaint was that which was voiced at the Farmers' Convention at Sale, viz., that the season was well advanced before owners were made aware of the result of the examination, and thus portion of the season was missed. No such complaint, however, came from any owner who had fulfilled the obligation imposed upon him by the Act. Very few of these, if any, were kept more than the statutory fourteen days in doubt.

The Act requires that the owner of every stallion must in each year, on or before the 1st July, make application for registration, the application to be accompanied by a fee of 20s. Many failed to do this, the first step for registration, and presented their stallions for examination by a veterinary officer at the advertised parade. In such cases, in order to avoid delay, the examination was conducted, but no information as to the result in any case could be made available until an application in proper form was received. This necessitated a con-

siderable amount of correspondence and delay as from the date of examination, but not from the date of completion of application.

Another cause operating in the same direction which could be attributed to neglect on the part of the owner was inattention to the dates fixed for parades, as published in the May issue of the *Journal*. The result of this was that many horses were not presented, and numerous applications were then received for further parades, but, of course, such requests could not be acceded to until the engagements in the time-table, drawn up in the month of April, had been fulfilled. One hundred and sixty-six parades were arranged and conducted prior to the opening of the Royal Show, and had all horses been presented there would have been little cause for complaint. A second series of parades, however, became necessary, and 100 centres were visited a second time before the end of October, and the stallion owner who had not even then completed his application was certainly missing part of the season. Yet many were still in default, and a third series of 62 parades had to be arranged, making a total of 328 for the season.

This neglect was a somewhat expensive one to owners, for all parades other than those duly advertised are classed as special parades, and an additional fee of 20s., together with the amount of the veterinary officer's rail fare, must be paid.

It is earnestly hoped that for the coming season all applications for registration will be made prior to the beginning of the parades, so that registration may be made before the season opens.

The total number of applications received for registration last season was 1,673, and 1,177 registrations were made. Five hundred and eighty-four stallions, holding life certificates, issued under the departmental regulations in force prior to the passing of the Act, were registered on application without further examination. Of the 1,089 examined, 593 were registered, and 496, or 45.5 per cent., were rejected. This percentage is very much higher than any previously noted, and is due to the fact that, as it was the first year in which the submission of stallions for approval was compulsory, many which had not previously been examined, and some which had already been refused certificates of soundness under departmental regulations, were submitted for examination. Amongst those not previously examined was a considerable number of aged stallions, and, as was to be expected, many were found unsound or below a reasonable standard for approval. The operation of these two factors made the total rejections high. Most of the unsoundness, as in previous years, was in the draught horses, where the total rejected was 33 per cent.; of these sidebone accounts for 25 per cent.

Contrasting the figures of last year with those of previous reports is of small value, for the reasons already indicated, and the only lesson that can be learnt from the table showing the details of examination is that if compulsory registration had been introduced years ago we would be in a far better position to-day, for the number of unsound horses sired by those stallions just examined for the first time and those which have previously been declared unsound must be very great. In effect, we really step back thirteen years, but from now onwards our progress in the rearing of sound horses should be quite pronounced.

TABLE SHOWING DETAILS OF EXAMINATION.

	Draught.		Light.		Pony.		Total.	
	Ex- amined.	Certifi- cated.	Ex- amined.	Certifi- cated.	Ex- amined.	Certifi- cated.	Ex- amined.	Certifi- cated.
	512	245	398	227	179	121	1,089	593
	Rejected.	Per cent. Rejected.	Rejected.	Per cent. Rejected.	Rejected.	Per cent. Rejected.	Rejected.	Per cent. Rejected.
Bog Spavin ..	4	·78	2	·50	..	..	6	·55
Bone Spavin ..	1	·19	18	4·52	5	2·79	24	2·20
Curb ..	..	..	9	2·26	..	..	9	·83
Ringbone ..	31	6·05	24	6·00	4	2·23	59	5·42
Sidebone ..	130	25·39	1	·25	..	..	131	12·03
Nasal Disease ..	..	..	..	..	1	·56	1	·09
Chorea ..	..	..	5	1·26	..	..	5	·46
Thoroughpin ..	1	·19	2	·50	..	..	3	·28
Roaring ..	3	·59	1	·25	..	..	4	·37
Stringhalt ..	..	..	1	·25	..	..	1	·09
Through un- soundness ..	170	33·20	63	15·83	10	5·59	243	22·31
Through disap- proval ..	97	18·94	108	27·13	48	26·82	253	23·23
Total ..	267	52·15	171	42·96	58	32·40	496	45·51

Appeals.

The number of appeals lodged against the rejection by examining officers was 39; 32 of these were on the ground of disapproval, and seven on the ground of unsoundness. Of the former, nineteen were successful, and of the latter three. In these cases it should be noted that the Appeal Boards, while agreeing with the veterinary officers as to the presence of abnormalities, were of opinion that such were due to accident, and were not hereditary unsoundness.

Legal Proceedings.

It has been necessary to institute legal proceedings against a certain number of stallion owners who have failed to conform to the requirements of the Act and the regulations, and during the next few weeks summonses will be issued. To the time of writing this report, only four cases have been heard. Two of these were for using a non-registered stallion, and the defendants were fined the minimum penalty, £5, with £4 4s. costs, and two were against owners of stallions life-certificated under departmental regulations, but which owners failed to apply for registration. One of the defendants in the case was fined 20s., with £4 4s. costs, and the other 10s., with £1 costs.

The offences to be dealt with fall under one or more of the following headings:—

- Failing to apply for registration of stallion;
- Failing to apply for registration, although a certificate of soundness had been previously issued in respect of a stallion; and
- Using an unregistered stallion for stud purposes.

General.

I desire to place on record my thanks to secretaries of agricultural societies, who arranged the parades, and more particularly to members of the police force, who, with the consent of the Chief Commissioner, rendered very valuable assistance in making known the provisions of the Act, and helped the veterinary officers in those centres in which there was no agricultural society to look to.

For the coming season 240 parades have been arranged, and the time-table has been published in the May issue of this *Journal*. Some variation may be necessary owing to alterations of the railway time-table, and a corrected list will be published in Bulletin form. If owners will study the time-table and complete their application forms as required during the months of June and July, all registrations should be made prior to the Royal Show.

The following salient points of the Act should be borne in mind by all stallion owners:—

1. The owner of every stallion must apply for registration.
2. All registrations made during the past season automatically terminate on 30th June.
3. Holding a departmental life certificate does not meet the requirements of the Act. Every stallion must be registered, but in cases where a life certificate has been issued the horse will not again be subjected to examination.
4. If a stallion be sold, the certificate of registration must be officially transferred, otherwise registration lapses.
5. If a stallion be sold or dies, notice of the fact must be given.

STALLIONS REGISTERED UNDER HORSE BREEDING ACT FOR SEASON 1920-21.

From 15th February to 30th May, 1921.

(4th List.)*

Cert. No.	Name.	Age.	Class.	Owner.	Address.
1205	Abbot's Best ..	A	Draught ..	J. Egan ..	Barwite
1213	Baron Allie ..	2	" ..	H. Jackman ..	Tandarra
1217	Baron Groat ..	2	" ..	J. Harper ..	Murchison
1211	Baron's Pride ..	A	" ..	W. Maloney ..	Mooroopna
1193	Best Vale ..	6	Light ..	D. Chilcott ..	Dookie
1200	Blackwin ..	4	" ..	H. W. Grattan ..	Kew
1202	Capshot ..	A	Thoroughbred	J. G. Davidson ..	Casterton

* Previous lists appeared in this *Journal* for October and December, 1920, and April, 1921.

STALLIONS REGISTERED FOR 1920-21—*continued.*

Cert. No.	Name.	Age.	Class.	Owner.	Address.
1223	Halswell ..	A	Draught ..	J. Work ..	Landsborough
1190	His Lordship ..	A	" ..	R. Jack ..	Rutherglen
1219	Honest Mac ..	A	Light ..	J. H. Hunt ..	Merrigum
1218	King Tony ..	A	Pony ..	J. H. Hunt ..	"
1201	Leitch ..	A	" ..	Ferguson Bros. ..	Coleraine
1222	Lord Osterley ..	A	Light ..	A. Drennan ..	Walpeup
1204	Mystery ..	A	" ..	C. E. Fewster ..	Richmond
1203	Newton Banks ..	A	Draught ..	P. N. Lock ..	Warrnambool
1192	Norfolk Swell II. ..	A	Light ..	H. McLean ..	Sale
1195	Peter ..	A	Pony ..	J. Abrahams ..	Fitzroy
1209	Premier Massey ..	A	Draught ..	H. R. Mullen ..	Terriek South
1191	Premier's Fancy ..	A	" ..	R. Jack ..	Rutherglen
1189	Quamby ..	A	Pony ..	P. Harrington ..	Dennington
1198	Quarrington Chatsworth	A	Draught ..	L. B. Oppenheim	East Devonport
1206	Rainbow ..	A	Draught ..	J. R. Peachey ..	Darlingford
1207	Ronyas Bells ..	4	Pony ..	M. M. Saynor ..	Hawthorn
1208	Royal Crown ..	A	Draught ..	W. Church ..	Katandra North
1215	Royal Duke ..	A	" ..	C. A. Howard ..	Colac
1210	Royal Lad ..	A	" ..	T. J. Dean ..	Landsborough
1196	Royal Rufus ..	3	Light ..	A. E. Hardy ..	Yarraville
1214	Seacombe ..	A	Pony ..	D. Langham ..	Sale
1216	Silverton ..	A	" ..	S. A. Goldstraw	Nullawarre
1212	Sweet Abbey ..	6	Light ..	R. Clulow ..	Nth. Melbourne
1197	Sylva ..	3	Draught ..	T. Le Grand ..	Darriman
1221	Togo ..	A	" ..	H. Currie ..	Joel Joel
1199	Woodland's Dandy	A	Pony ..	W. A. McLean ..	Jung
1220	Young General ..	A	" ..	W. Madill ..	Tongala

THERE is one other phase of the live stock industry which is worthy of attention, and that is the production of pure-bred animals for breeding purposes. One of the problems in this connexion is the indifferent farmer, who uses sires which produce stock of inferior quality, and who refuses to buy even moderate-priced sires which would improve the quality of his stock and increase his profits. On the other hand, we have breeders with unsold male animals on hand, of various kinds, which they would be glad to dispose of at bargain prices, and the problem is how to induce the indifferent farmer to appreciate his opportunities. While this is true, and while at times there may be more or less stagnation in the market for breeding animals, there is as yet no reason for the breeder of pure-bred animals to be discouraged. Gradually the value of better sires is becoming appreciated by the general farmer, and, while we may expect at times periods of quiet or slack demand, these conditions can be only temporary, and the man who is breeding really good stock has no occasion to worry regarding the ultimate outcome of his efforts.

—Extract from Annual Report (1920) of Department of Agriculture, Ontario, Canada.

SOME RESULTS IN TOP-DRESSING OF PASTURES.

Address Delivered at Conference of the Australasian Butter and Cheese Factories Managers and Secretaries Association, May, 1921.

(A. E. V. Richardson, M.A., B.Sc., Agricultural Superintendent.)

Importance of Pastures.

The natural pastures of Australia form the principal source of national income, since practically the whole of the sheep and the greater part of the cattle are supported almost exclusively by the grazing of the natural herbage. In this State approximately six million acres are devoted to cultivation and thirty million acres to grazing and pasture. On these areas an average of fifteen million sheep and one and a half million cattle are annually grazed.

During the last few years the total wealth raised from the soil in Victoria has increased enormously. This result is mainly due to high prices for agricultural produce. According to the latest figures available from the Government Statist, the value of primary produce is double what it was six years ago. For the years 1918-1919 and 1919-20, the value of pastoral and dairying products reached £27,500,000 a year. The greater part of this amount was obtained from the produce of stock grazed on eighteen million acres of natural pasture in districts where the rainfall is over 25 inches.

From these figures it will be apparent that the preservation and improvement of our pastures, especially in the better rainfall country, is one of the most important problems confronting the State.

How Pastures Deteriorate.

Natural pastures are liable to injury and depreciation by overstocking, injudicious grazing, and by the spread of noxious weeds. By injudicious grazing and overstocking, the best types of grasses tend to disappear, and the poorer types of indigenous vegetation are left to hold sway with a horde of naturalized aliens.

The alien vegetation is usually less valuable than the native grasses they have supplanted. The spread of such weeds as St. John's Wort, Hoary Cress, and the multitudinous array of proclaimed plants has lowered the grazing capacity of many fine natural pastures, and has even detrimentally affected land values.

There are, however, large areas of natural pastures in the State which have a low grazing capacity, not because they have been injudiciously stocked, nor yet because of the uninterrupted spread of worthless weeds and alien plants, but because of the natural poverty of the soil. One of the most reliable guides to the quality of the soil in any given district is the nature and quality of the timber and grass that grow naturally on the area. Rich succulent natural pasture of high fattening capacity is a sure indication of a soil abounding in virgin

richness. On the other hand, the growth of dwarfed and sparse indigenous grasses in the open belts of country is an equally sure sign of poor quality soil.

Finally, continual removal from the soil of the elements of nutrition by the annual crop of wool, and lambs, and fat stock sold off the farm, without giving back to the soil some compensation in the form of fertilizers, will ultimately bring both rich and poor soils alike to a state of comparative exhaustion.

This latter condition will be most evident in the older settled districts of the State, and especially in the moister localities.

How Poor Pastures may be Improved.

Poor pastures may be improved in several ways—

(1) By breaking up the pastures with the plough and sowing them down again with native or imported grasses of a type superior to those in the existing pasture.

(2) By top-dressing the pastures with suitable fertilizers and with suitable soil amendments, *e.g.*, lime and ground limestone.

(3) Indirectly by the use of heavy dressings of fertilizers on cereal and root crops. When the crops are removed the residual effect of the heavy dressings stimulates the herbage on the stubbles and increases both the bulk and the palatability of the grass.

The first method of improvement is open to several objections. As soon as the land is brought under cultivation the indigenous vegetation tends to disappear, and many of these grasses are well suited to our climatic conditions, and have good fattening qualities. Moreover, this process of renovation is costly, and over the great bulk of our pasture lands difficult of application.

The improvement of pastures by top-dressing with fertilizers is capable of wide application in Victoria and throughout the moister regions of Australia. The improvement is based on the prior improvement in the land itself. By improving the chemical composition of the soil by the use of fertilizers, and the physical and biological condition by the use of soil amendments such as lime, the soil becomes capable of supporting a more vigorous growth of higher quality herbage, and the stock-carrying capacity of the pastures greatly increased.

The strength of a chain depends upon the strength of the weakest link. The amount of growth is determined by the amount of the most deficient plant food present in the soil. A superabundance of the majority of essential elements will be of no avail if the supply of any one essential element be below the requirements for vigorous healthy growth. And since the majority of our soils are invariably short in available phosphoric acid, it follows that crop production and the growth of grass will depend chiefly on the supplies of soluble phosphate in the soil.

The third method of improving the stock-carrying capacity of pastures is specially suited to the wheat belt. One cogent reason for the liberal use of artificial manures in raising wheat is that heavy

dressings of fertilizer not only provide for the full requirements of the wheat crop, but materially stimulate the stock-carrying capacity of the grass and herbage which spring up spontaneously on the stubbles.

Rainfall Largely Determines Response to Top Dressings.

We are here concerned mainly with the effects of top-dressings. It is in the heavier rainfall country that the response to top-dressing is most marked.

There are several reasons for this. In the first place the leaching of soluble plant food is greater in the moister country. The soils are particularly subject to losses of nitrates and lime. Phosphates and potash, on the other hand, are more firmly held by the soil, and losses by leaching are but slight.

Again, as the weight of grass produced is largely dependent on rainfall, the yield of grass is heavier, it has a longer growing period, and checks by drought are less frequent in the moister areas. Hence far more stock are kept per square mile in the better rainfall country.

The maps on pages 350 and 351, showing the distribution of cattle and sheep in the State, bring out this feature very clearly. In these maps, one dot represents 10,000 animals in the case of sheep and 1,000 in the case of cattle. The dotted line represents the boundary of the 20-inch rainfall country.

There is a marked concentration of sheep in the Western District, and of cattle in the Gippsland, Western, and North-Eastern Districts, as compared with the Wimmera and Northern country. The drier Mallee areas are the most sparsely stocked areas in the State.

The greater part of the cattle and a considerable proportion of the sheep of the State are located in country with a rainfall of 20 inches or over.

The drain on the ash constituents of the soil will, therefore, be much greater in the moister areas, because of the larger annual crops of wool, lambs, and fat stock sold off the farms and pastoral properties. For these various reasons the heavier rainfall country will suffer a more rapid loss of mineral constituents than the drier country.

On the richest soils of the Western District, Gippsland, and the North-East, many years may elapse before the decline in mineral elements becomes apparent and affects production. On the average and poorer country the decline in fertility has already become pronounced. This is notably the case in the Hamilton district, one of the oldest settled portions of the State. If the decline in fertility is to be arrested, steps must be taken to gradually restore to the soil the constituents removed by half-a-century of improvident live stock husbandry.

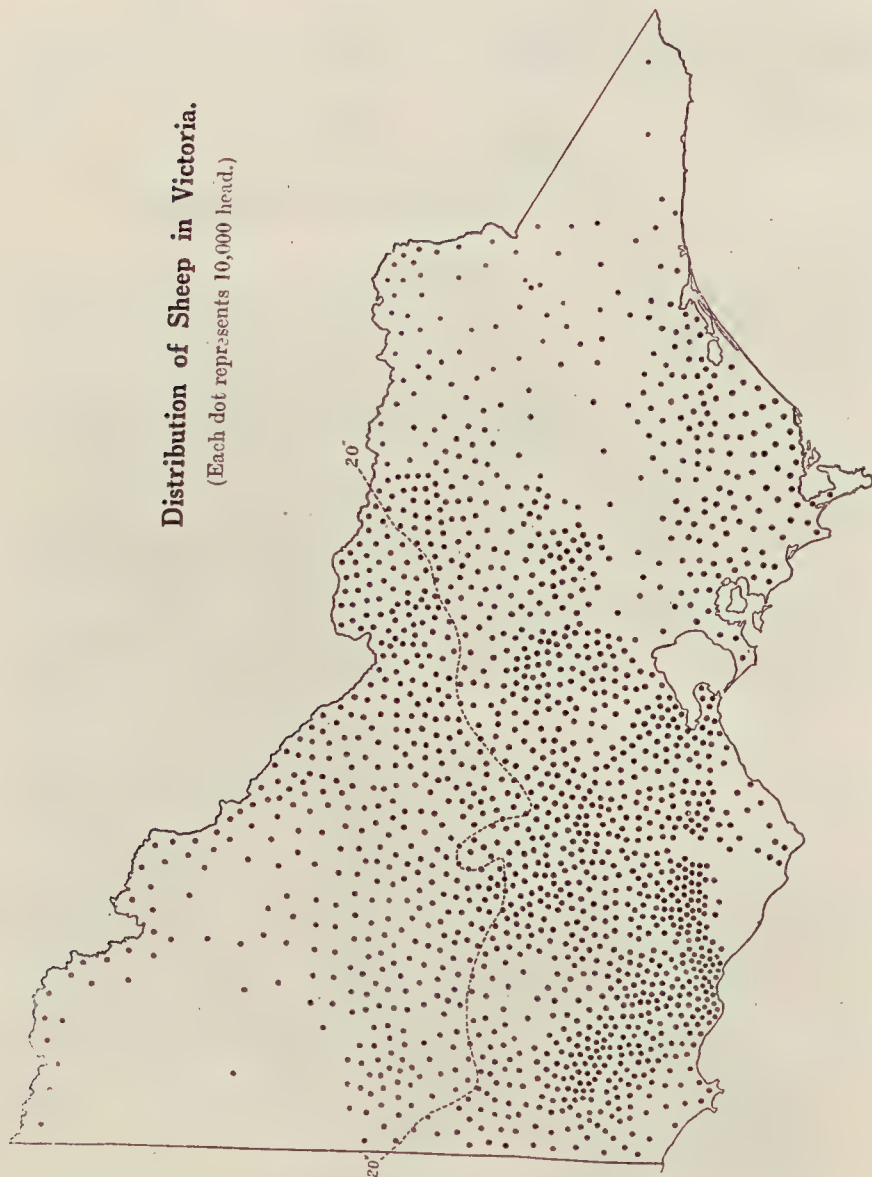
Fortunately, simple and comparatively inexpensive remedial measures are available to every stockman.

Effects of Top-dressing Pastures:

We have already seen that theoretical considerations would lead us to the view that top-dressing of pastures would be more effective in the districts of heavier rainfall. Practical experience and experimental

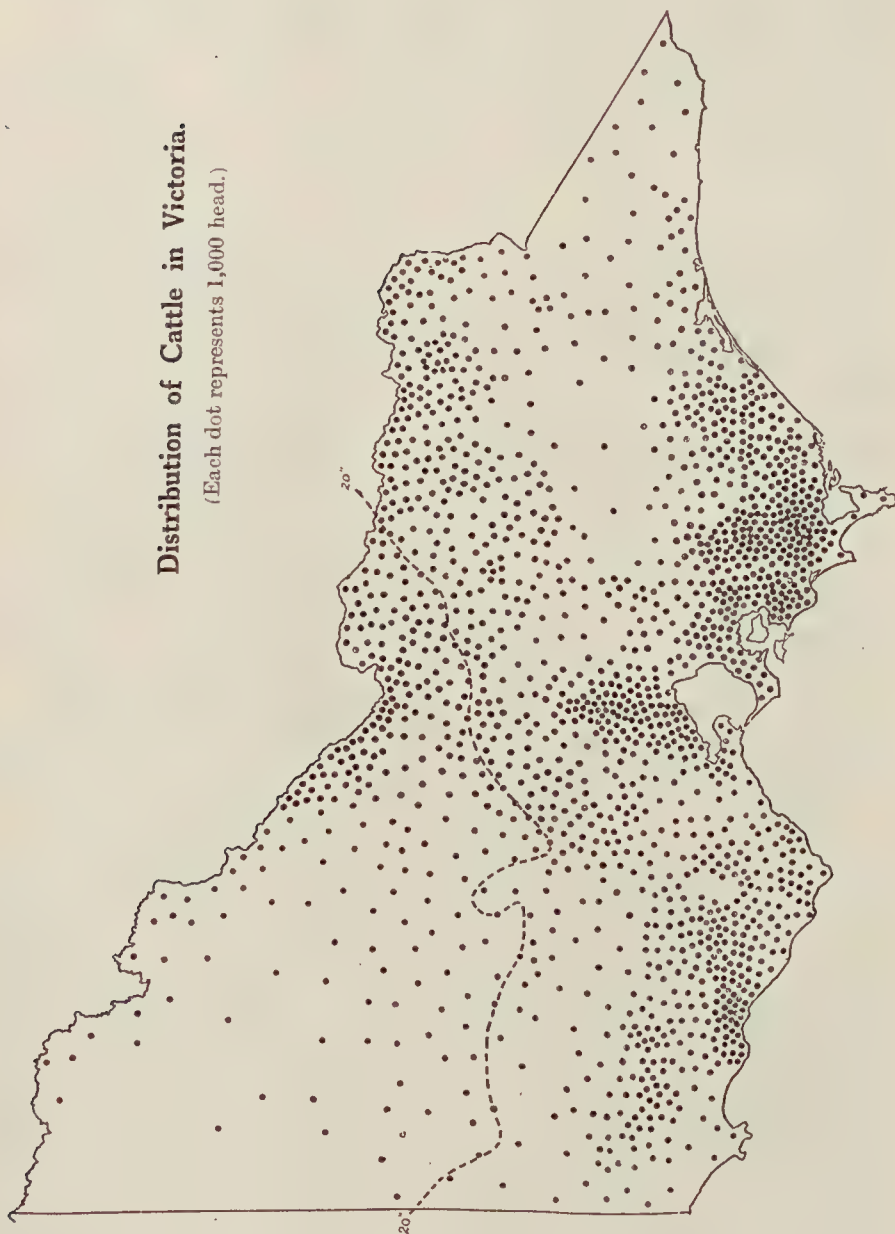
Distribution of Sheep in Victoria.

(Each dot represents 10,000 head.)



Distribution of Cattle in Victoria.

(Each dot represents 1,000 head.)



evidence support that view. In the wheat belt the response of native pasture to top-dressings of phosphate is not marked. As we pass from the Divide to the Murray the response becomes increasingly feeble. On the other hand, with rainfalls of 20 inches or over, top-dressings with phosphates and lime produce a pronounced effect. The response is most noticeable on the poorest and oldest settled lands.

The first tests made by the Department were those at Rutherglen in 1913, the object being to ascertain the value of various fertilizers in top-dressing of natural pastures. Superphosphate, 2 cwt., basic slag, 2 cwt., super., 2 cwt., plus lime, 10 cwt., were tested alongside a control plot of no manure.

Fifteen crossbred lambs of even quality were placed on each of the plots, and the increases in live weight obtained by weighing the lambs on and off the plots. The lambs were removed from the plots as soon as the grass was eaten out.

The season was very favorable for grass, the growth of the natural pastures being exceedingly heavy. The results of the tests were as follow:—

TABLE I.—INCREASES IN LIVE WEIGHT OF CROSSBRED LAMBS ON GRASS LANDS VARIOUSLY TOP-DRESSED. RUTHERGLEN, 1913.

Plot.	Treatment.	Weight on.	Weight off.	Days grazed.	Increase in live weight per acre.
		lbs.	lbs.		lbs.
1	Super. 2 cwt.	960½	1,206	28	491
2	Nil	950	1,069	21	238
3	Basic slag 2 cwt.	952½	1,146	28	387
4	Super. 2 cwt. plus lime 10 cwt.	943½	1,192	28	497

Three effects were immediately apparent from the experiment—

1. The weight of the herbage was greatly increased.
2. The proportion of clovers and trefoils in the herbage was greatly increased.
3. The palatability and stock-carrying capacity of the herbage was much increased.

The experiments were repeated in 1914 on larger plots of 4 acres each, with precisely similar results. The experiments aroused much interest in the district, and led to a considerable area of land in the district being treated.

In 1918 similar experiments were commenced at Hamilton, where results obtained at Rutherglen were confirmed.

The results last year may be taken as typical of the effect of top-dressings in land of similar quality.

During 1920 the top-dressings were confined to basic phosphate, 2 cwt., superphosphate, 2 cwt., and super., 2 cwt., plus lime, 10 cwt., with a control plot of no manure.

On 24th November portions of the plots were harvested to determine the weight of herbage on each plot, and the herbage was carefully

analyzed to determine the proportion of legumes in the pasture. The results are summarized in the accompanying table:—

TABLE II.—WEIGHT OF AIR-DRIED HAY, AND PROPORTION OF LEGUMES IN NATURAL PASTURES, TOP-DRESSED WITH VARYING ARTIFICIAL FERTILIZERS. HAMILTON, 1920.

	Yield of air-dried hay per acre.	Percentage by weight of trefoil and clover in pasture.
	cwt.	%
No manure	8.04	4
Basic phosphate	29.14	23
Super. 2 cwt.	30.43	19
Super. 2 cwt. plus lime 10 cwt.	35.45	28

It is clear from the table that the fertilizers have induced a marked increase in the quantity of herbage. The application of basic phosphate and superphosphate more than trebled the weight of grass, whilst the addition of 10 cwt. of lime still further augmented the yield. Not only was the weight of herbage greatly increased, but the fertilizers augmented the proportion of leguminous plants present in the pasture.

The most marked improvement was shown by the application of super. and lime. On this plot the proportion of legumes to total herbage was increased from 4 per cent. to 28 per cent. Basic phosphate showed up to better advantage than super. in stimulating the legumes. The principal legumes present were cluster clover, hop trefoil, knotted clover and slender clover.

The stimulation of the growth of clovers by the phosphate dressings is a point of practical significance. These plants have, of course, a high feeding value on account of the comparatively high ratio of digestible protein to carbohydrates as compared with that of grasses and other herbage.

A high proportion of legumes in the pasture is especially desirable where dairy cows are kept, for the cow in full milk requires a pasture with a relatively narrow nutritive ratio, *i.e.*, a high proportion of digestible protein to digestible carbohydrates. Ewes with lambs, and young growing stock also thrive best on such a pasture. These plants being nitrogen gatherers and nitrogen fixers materially assist in increasing the nitrogen content of the soil.

Finally, there was a very definite improvement in the palatability of the dry feed on the manured plots. The greatest effect was observed on the land manured with 10 cwt. lime and 2 cwt. of super. It was found that when sheep were given the choice of the whole of the manured pastures they selected and entirely disposed of the grass on this plot before attacking that on any others.

Similar results were obtained at Rutherglen during the past year. Five plots of 3½ acres each were top-dressed in autumn, and on 26th October the weight of green herbage on each plot was determined. At the same time 19 sheep were weighed in on each plot. After the sheep had grazed on the pastures a month, 20 additional sheep were put on

each of the manured plots, and nine sheep on the unmanured plot. The whole of the sheep were removed on 6th December, and weighed.

The results were as follow:—

TABLE III.—WEIGHT OF GREEN HERBAGE AND INCREASE IN LIVE WEIGHT OF MATURE SHEEP GRAZED ON PASTURES VARIOUSLY TREATED WITH ARTIFICIAL FERTILIZERS.

Plot.	Treatment.	Weight of greenstuff per acre.	Number of sheep on plot.	Gain in live weight.	
				Per plot.	Per acre.
		tons		lbs.	lbs.
1	Super. 1 cwt. and lime 10 cwt.	8.77	39	545	145
2	Super. 1 cwt.	7.15	39	347	92½
3	Nil	2.42	28	139½	37
4	Basic slag 1 cwt. per acre ..	4.16	39	204½	54½
5	Super. 2 cwt., nitrate of soda 1 cwt.	9.5	39	342	91

19 sheep for 40 days and 20 sheep for 14 days.

These results confirm those obtained at Hamilton, and show that the weight of herbage (in this case taken green, and, therefore, containing about 85 per cent. of moisture) on the manured pasture was more than trebled, and the gain in live weight per acre greatly increased.

An interesting example of the preference shown by cows for top-dressed land has been demonstrated on Mr. Horne's property at Cudgee, in the Warrnambool district. In distributing the manure with the drill narrow strips were missed, and the animals seemed to know them to the inch. They have been observed to feed along the edges of the treated portions, and at the end of the season strips of long dry grass on the untreated portions have been visible from a considerable distance. On the rich volcanic soils of the Port Fairy district, Mr. J. Goldie applies 1 cwt. of super. every second year. He has also similarly treated inferior country, and estimates that the top-dressing doubles its carrying capacity.

Types of Manures for Top-dressing.

Phosphatic manures are the most useful and stimulating of all the artificial manures. In some of the exceptionally wet districts there may be a call for nitrogenous manures. It would be sounder practice, however, to endeavour to obtain the nitrogen necessary by indirect means, *i.e.*, the stimulation of the nitrogen-gathering leguminous plants by liberal dressings of phosphates or of lime. Superphosphate can be recommended on soils fairly rich in lime, or those which do not show a distinctly acid reaction. On sour land basic phosphate or basic slag will prove more suitable. Wherever lime can be obtained at reasonable prices, there is no combination like that of super. and lime—the lime being applied early in autumn and the super. broadcasted or drilled on the pasture in May.

So far as the quantity of phosphate to apply is concerned, this will largely depend on the type of soil and the rainfall. One cwt. per acre should be regarded as a minimum dressing for pasture land of moderate quality. The most profitable amount to apply can be determined by the farmer himself by actual trial. The expenditure is comparatively trifling compared with the value of the land. In Great Britain and New Zealand, extremely heavy dressings of phosphates and lime are applied to pastures, dressings of 4 to 6 cwt. of phosphates being common, and in time similar practices will be followed in Victoria on the better rainfall country. The first step, however, is to get the farmer in the better rainfall belt to try the practice with a relatively light dressing; the results will soon convince him of its value.

Application of Results.

The results have a wide application, not only to Victoria, but also to Australia. We know well enough that much of the heavy rainfall country is soil of average quality. The bulk and the quality and palatability of the herbage can be greatly increased by regular top-dressing with phosphates, and in some cases with phosphates and lime.

Twenty years ago there were only 11,000 farmers in Victoria using phosphates; to-day there are 34,000. No wheat-grower would think of seeding his crop without phosphates. Nor should the grass-growers of Victoria expect Nature to indefinitely furnish the mineral constituent required for the production of Victoria's annual crop of wool, lambs, fat cattle, milk, and dairy products without some replenishment in the form of artificial fertilizers.

The members of this Conference occupy a unique relation to the farmers. They come from every quarter of the dairying belt, and they are in a large measure advisers to the farmers in their respective districts. If they can persuade the dairymen and stock raisers in their districts to try out the effects of top-dressing, they will be engaging in a work of national importance.

The welfare of Victoria depends largely on the number of stock that can be kept in the good rainfall country. Wherever top-dressing of pasture has been given a trial it has been demonstrated that the stock-carrying capacity can, at least, be doubled. Here, then, is an opportunity to vastly increase Victoria's live stock industry, greatly swell the output of dairy products, and add materially to the State's prosperity.



CROP AND FALLOW COMPETITION, HORSHAM, 1920.

*Report of the Judge, H. A. Mullett, B.Ag.Sc., Chief Field Officer,
Department of Agriculture.*

Your Society is one which does not regard its functions as beginning and ending with the organization of the local show. It has already demonstrated, in a most practical way, that it is willing to foster sound educational movements calculated to improve the agricultural practice of the district.

A few years ago it offered substantial prizes for a seed wheat selection competition among its members. The results conclusively demonstrated the value of seed selection, and have resulted in a widespread recognition of the value of the practice among the local farmers.

In initiating the Crop and Fallow Competition, the Society has entered still another field of educational effort. In common with a number of other Wimmera and Mallee Societies, it is endeavouring to discover and publish information concerning the methods by which the best wheat crops in the district are raised each year. An annual competition is held in which crops may be entered for a prize, and careful note is made of the methods by which they are grown. Elsewhere it has been shown that, not infrequently, information of the highest practical value to the farmer is thus brought to light, and it is not too much to hope that such will be the case at Horsham.

THE DISTRICT.

The Grampians are the most prominent feature in the Wimmera landscape. They are the source of the water supply which has rendered the closer settlement of the Wimmera and Mallee safe. Within a few miles of their base lies Horsham, the capital of the Wimmera.

From Horsham, north-east and west, for many miles stretch the magnificent black soil plains, which may be regarded as, perhaps, the finest wheat-growing belt in Australia. They gradually merge into rolling country of almost equal fertility, and this in turn gives way to the lighter Mallee soils. The richest land is, perhaps, that skirting the southern limits of the plains, as at Horsham, Doon, Jung, Murtoa, and Rupanyup; but isolated pockets of specially fertile land are dotted everywhere on old lignum flats. The south-eastern limit of the black soils is at Marnoo, the north-eastern at Warracknabeal. To the west they stretch as a long narrow tongue on both sides of the Little Desert towards the South Australian border.

The rainfall over all this country ranges from 15 to 17 inches annually, which is sufficient, on well-managed farms, to produce heavy crops of wheat.

The yields of wheat grown at Longerenong College may be taken as a case in point. Over a six-year period (1915-1920), an average yield of 33½ bushels per acre has been maintained for an average seeding of 300 acres. This year the average yield is 38 bushels per acre. Nor is the yield at the College an isolated instance of what can be done by sound farming in the Wimmera.

THE COMPETITION.

The competition comprised two sections, viz.:—I. Prizes for the best 75 acres of wheat; and II. Prizes for the best 100 acres of fallowed land. There were fourteen entries.

In judging the wheat crops and fallows, a standard scale of points, which has given satisfaction at Nhill during the past twenty years, was adopted. Details of this are appended elsewhere. Points were allotted for apparent yield, for purity and trueness to type of the wheat, for freedom from disease, such as smut, take-all, flag-rust, &c., and for absence of deleterious weeds, such as musk, wild oats, charlock, &c.

In judging the fallow, attention was paid to the amount of moisture conserved, to cultivation—especially where good consolidation has been secured below, and to the absence of weeds.



A Heavy Crop of Gallipoli—W. O'Connor, Horsham.

RESULTS—CROPS.

SECTION I.—BEST 75 ACRES STANDING WHEAT CROP.

Mr. W. O'Connor was placed first in this section with a total of 94 points; Messrs. Worth Bros. being second with 90 points. Excellent crops were also exhibited by Messrs. Miller Bros., Geo. Jenkinson, and others.

The first two crops so far exceeded the others in yield as to stand out prominently. Both were practically free from disease, and only a few wild oats were present. Mr. O'Connor's crop comprised 50 acres of Federation, and 25 acres of Gallipoli. The Federation was quite pure and true to type, but the Gallipoli showed the variation which is at present associated with this variety. The crop was grown on summer-fallowed land. Mr. O'Connor ploughed in March to 3 inches, then harrowed. It was scarified in August, and again in September, and then harrowed. After harvest it was harrowed, following summer rain, then scarified up before sowing at the beginning of June. It was sown with 73 lbs. of graded seed wheat from Longerenong College, and with 90 lbs. of superphosphate per acre.

Outstanding features which have undoubtedly contributed to the heavy yield of this crop were the long fallowing period, in which Mr.

O'Connor is a firm believer; in the thorough working of the fallow; and in the use of improved, graded seed, accompanied by a liberal dressing of fertilizer.

Summer-fallowed crops have, during the past four years, almost invariably been the winning crops in the Wimmera Farm Competitions. It is the well-grounded belief of numbers of sound, practical men that a crop grown on a good summer fallow means from one to two bags of wheat per acre more than one on equally well worked winter fallow.

Messrs. Worth Bros. showed a very creditable paddock of a new wheat known as Huff's Imperial. This is a short-strawed wheat, of clubby type. It appears to be prolific, and to stand well. A fair number of brown strangers, resembling Federation, were noticed; otherwise, it was an excellent crop in every way, and a very heavy yield should be obtained.

This crop was also grown on summer-fallowed land. It was ploughed in March to 3 inches, scarified early in August, then harrowed three times; it was scarified again in September, and then harrowed. After harvest it was left until May, when it was harrowed; then scarified and drilled during the second week in June; and finally harrowed after the drill. One and a half bushels of seed per acre were used, together with 112 lbs. of superphosphate.

Messrs. Miller Bros.' crop was grown on winter fallow. It was sown at the end of June with 80 lbs. of seed and 90 lbs. of superphosphate. Federation was the variety. This crop suffered somewhat owing to uneven ground. Points were deducted because of the presence of strangers of the College Eclipse variety.

A very handsome crop, also of Federation, was that of Mr. G. Jenkinson. It was quite free from weeds and of level appearance. It was, however, affected with black rust, which had weakened it somewhat. It was sown early in June on winter fallow with 75 lbs. seed, and 90 lbs. superphosphate.

Messrs. Smith Bros.' crop of Federation was sown on winter fallow during the last week in July with 80 lbs. of seed and 120 lbs. of superphosphate. Their system is to depend on plough and scarifiers for preparing the fallow, and on sheep for maintaining it free from weeds, and in a well consolidated condition. A good many strangers were noticed, and flag-rust was in evidence.

DETAILS OF RESULTS.—SECTION I.—75 ACRES CROP.

Name.	Yield.	Trueness to Type.	Absence of Disease.	Absence of Weeds.	Level even character of Crop.	Total.
Possible Points	35	20	15	15	15	100
W. O'Connor	35	15	15	14	15	94
Worth Bros.	34	15	12	14	15	90
Miller Bros.	31	16	15	12	13	87
G. Jenkinson	29	19	10	15	14	87
Smith Bros.	27	15	7	13	12	74

Please note that the points allotted for yield do not represent the yield in bushels per acre. The winning crop should yield considerably

more than 35 bushels per acre. As near as possible, the differences between the points allotted are the apparent difference of yield in bushels per acre.

RESULTS—FALLOWS.

Messrs. Miller Bros. were first in this section with 97 points. This was portion of a large paddock of winter fallow which had received a thorough preparation. The fallow was particularly high in conserved moisture, well consolidated below, and topped by a good serviceable 2 to 2½ inches of mellow dust. This fallow was ploughed in July to 3 inches deep, harrowed twice, then scarified, and then harrowed twice more.

Messrs. Worth Bros. were second with 94 points. This fallow had a good moisture content, but showed evidence of scarified misses and a few mustard plants. It was winter-fallow ploughed toward the end of July to 3 inches, then harrowed twice, scarified up in September, and then harrowed three times. Other good fallows were shown by Messrs. Reinheimer and others.



Messrs. Worth Bros.' Second Prize Crop of Huff's Imperial.

The main faults among the rest were poor consolidation of the under layers, caused by late working of the fallow, and a harsh lumpy mulch, arising from the same cause, also the presence of barley grass.

DETAILS—SECTION II.—FALLOWS.

Name.	Moisture.	Mulch.	Weeds.	Consolidation.	Total.
Possible points ..	25	25	25	25	100
Miller Bros.	25	23	25	24	97
Worth Bros.	25	24	23	22	94
C. Reinheimer	24	23	20	24	91
A. W. Hobbs	24	20	25	22	91
Smith Bros. (Glenburnie) ..	24	21	20	23	88
H. Klouse	23	21	23	21	88
Smith Bros. (Waverley) ..	22	20	23	22	87
A. G. Turnbull	24	15	17	17	73

FARMING SYSTEMS AT HORSHAM.

Nowhere in the Wimmera are land values higher than in the Horsham district. Prices paid recently range from £15 to as high as £22 per acre. This land will only carry about two-third sheep to the acre without cultivation, and from this point of view its value is, say, £5 to £6 per acre. It is not surprising, therefore, that farmers who pay these high prices for land are forced to crop it much more closely than is done in other parts of the Wimmera where the land is cheaper. It does not pay to sheep more land at that price than can be helped; but that does not mean that it pays better to have no sheep at all.

Heavy cropping inevitably brings in its train diseases, such as flag rust and takeall, which eventually compel a precipitate spelling of the land. It is a question, therefore, as to which is the most profitable compromise—the heaviest cropping of the land possible on the one hand, and the systematic spelling of it on the other.



An Attractive Homestead (Messrs. Miller Bros., Horsham).

On the question of the most profitable farming system, farmers at Horsham are divided. One group believes in a rotation system in which fallow, wheat, and grass follow each other in regular sequence (in very few cases is fallow, wheat, oats, and grass the rule). A popular system which is gaining ground is cropping the land as heavily as possible to wheat after fallow without a rest until it shows signs of becoming "crop sick." Then it is spelled in oats or grass. Under the first system one-third of the farm is under wheat each year, while under the last half of the farm is under wheat each year.

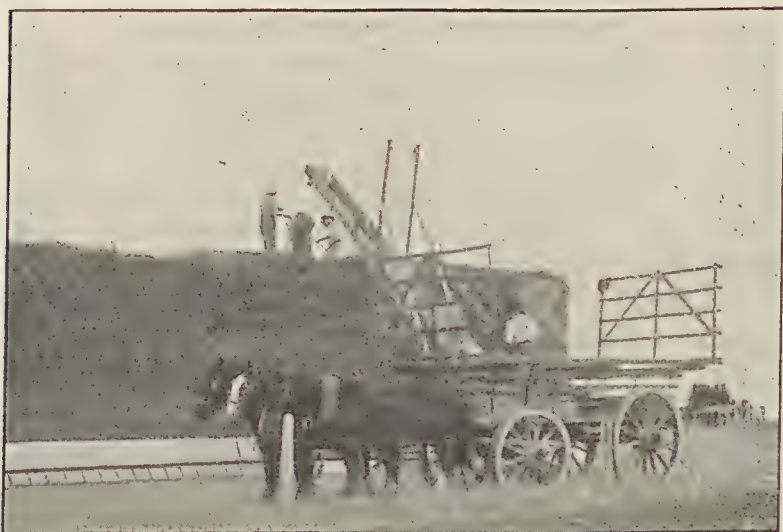
It is somewhat unfortunate that we have not yet reliable figures from the experimental plots at Longerenong College that would enable a practical comparison of the results to be made, and the most profitable system determined. That would settle the question definitely.

It is well known, however, that in some cases the immediate advantage is often in favour of the heavy cropping method. Instances may be cited where particular paddocks have been cropped to wheat after

fallow without rest for many years without suffering apparent decline in yields. But in other cases some are known to have rapidly become "wheat sick."

Viewing the matter in as broad a way as possible, there are some considerations which would lead one to suppose that the advantage is, after all, not so much in favour of the heavy cropping method as many farmers may suppose.

Briefly, both systems may be summed up as follows. The heavy cropping system gives one-sixth more land under wheat each year until the enforced spelling takes place. That would probably be necessary every four or five crops, *i.e.*, once in eight or ten years. So that in the end the advantage of the greater area under crop is considerably reduced.



A Convenient Method of Sticking Hay (Messrs. Worth Bros., Horsham).

Again, many heavily-cropped paddocks become notoriously bad with black rust and takeall, and it may be reasonably expected that they will not yield so well, on the average, as the spelled paddocks of the other system. Further, the heavy cropping system means reducing the number of sheep to a minimum, or even means dispensing with them altogether. Thus the land farmed on the "thirds" system would have greater returns from sheep than that farmed on the "halves," and so these help to further counterbalance the effect of the smaller area sown annually.

To sum up, then, it would not seem that the close method of cropping in the long run has so much in its favour as appears at first sight. It is also a risky practice, because no one can forecast with certainty when the paddock will go off with takeall.

Finally, there can be no doubt whatever that it places a considerably greater strain on the stored fertility of the soil. The "thirds" system also is not entirely devoid of risk; but where an occasional oat crop can be grown it is the better practice of the two.

A Modification of the Horsham Rotation Systems.

An interesting modification of the two Horsham systems is that of Mr. A. Lutze, of Coromby. He crops each paddock to wheat after fallow for three years in succession, then seeds to oats, then spells in grass for two or three years. This is equivalent to a four-course rotation system in that a quarter of the farm is under crop each year. Mr. Lutze finds that during the period of heaving cropping the land can be brought to a condition of tilth resembling an onion bed, and consequently is in a highly fertile state. This system has given some heavy crops of wheat, but in one paddock it broke down badly this year to takeall. This is a paddock where the stubbles were not burned, and where the spring working had been missed.

Method Used at Longerenong College.

Some of the advocates of the three-course rotation system are Messrs. Miller Bros., Mr. G. Jenkinson, and the farm manager, Longerenong College (Mr. C. Munro). Reference has already been made to the high average yields of wheat secured at Longerenong College over the past five years. It is, therefore, not without interest to consider the methods adopted by Mr. Munro. The standard rotation system is fallow, wheat, pasture; but as often as possible each paddock is given a turn with oats before throwing it out to grass for one year. Then the rotation is fallow, wheat, oats, pasture. The practice is to burn the stubbles, even on the pasture, if possible. This is adopted as a precaution against takeall, as well as to insure the easy manipulation of the cultivation implements.

Usually about one-third of the land (100 acres) is summer fallowed after harvest, with the object of getting some of the work done before the seeding time. The remainder is winter fallowed as follows:—The land is ploughed from 3 to 3½ inches, and harrowed immediately afterwards. The red patches are ploughed as shallowly as possible, better results being secured in this way. Next, in September and October, two scarifyings are given, with the levers set, so as to cut rubbish, and yet permit of cultivation no deeper than, say, 2½ inches. The fallow is then left till after harvest. Should there be summer rains, as many paddocks as possible are harrowed while still moist, this harrowing being regarded as particularly valuable. Depending upon the break in the weather, the next scarifying is made in March or April; then comes a final scarifying in front of the drill. This is a most thorough operation, the points of the scarifier being specially dressed for the purpose; they are not touched for any other operation. The object is to kill every weed showing; a poorly-pointed scarifier will miss them. This last scarifying is not made until two germinations of weeds have taken place, and no anxiety is felt up till the middle of June before commencing seeding. Poppies and ironweed germinate slowly, but the mid-June scarifying will kill them.

From 75 to 80 lbs. of graded seed are used for mid-June sowings, and increased to 90 and 95 lbs. as the season gets on to the end of July. One cwt. of superphosphate is the quantity of manure used.

The only place where takeall has been noticed at the College is in a paddock that has not yet had its turn of oats. The affected crop was on late fallow, lightly worked only, and the old stubbles were not burnt.

Those who adopt the heavy cropping system at Horsham generally have plenty of labour at their disposal. Messrs. Smith Bros., of Glenburnie, are prominent advocates. The system is to crop a maximum area to wheat each year, and to spell to oats or grass only when necessary. Messrs. Smith Bros. believe in ploughing the land shallowly, say, 3 to 3½ inches deep, and preferably on the wet side. It is scarified twice in the spring, and then left till seed time. The harrows are practically dispensed with, their place being taken with sheep. The crop, when up, is eaten off with sheep until the ground appears quite bare. They are crowded on with the express purpose of tramping the ground solid after they have disposed of the crop. Following this system, Messrs. Smith Bros. have grown some fine crops of wheat and hay since they have been at Horsham, though it is doubtful if it is the best.

A NEW CITRUS DISEASE.

(*Pythiacystis Citriophthora.*)

(By C. F. Cole, Orchard Supervisor, Wangaratta.)

Of all the known fungus diseases attacking citrus and other fruit trees in this State, perhaps none is to be more feared than this new addition to the list, *Pythiacystis citriophthora*. This opinion is based by the writer upon the heavy damage done in a small grove of 250 trees situated at Lower Everton in the North-East, where the disease was noted for the first time in Victoria.

Specimens of diseased fruit, leaves, and twigs were forwarded to the Government Plant Pathologist, Mr. C. C. Brittlebank, who diagnosed the trouble as a fungus of low form, related to the Irish blight of the potato, *Phytophthora infestans*.

Like this potato disease, it appears very suddenly. The first signs follow upon wet, cold weather conditions about the month of June, perhaps earlier if conditions are favorable, and in a few days considerable damage is done to fruit, twigs, and foliage. From the onset of the disease until September, the attacks are periodical, the fungus seemingly developing anew during suitable weather conditions, or until such conditions are adverse to its growth. The severest attack in the grove at Everton was in August and early in September, a period when the rind of the oranges, &c., was at or approaching the ripened stage.

Trees attacked early in the season, when the rind of the fruit is in the greener stages, do not suffer so severely as those affected when the fruit is in the later stages of ripening, although severe damage may be done to the foliage and twigs. In confirmation of this, I may mention that the only fruit left upon the trees attacked in August and early September was that in an unripened stage.

Fruit attacked in June and July has a greater tendency to hang upon the trees and dry up than that not infected till August and September. A recurrence of attacks upon the same tree largely depends upon the amount of foliage left on any tree.

The species of citrus fruits which have been found infected with this fungus disease are Common Oranges, Navels, Poor Man's, Seville, Grape Fruit, Cumquots, and Mandarins. So far, lemons appear to show immunity from attack, although growing alongside diseased orange trees.

First Signs of Attack.

Any grower who finds upon green leaves shed after rain a dark-coloured blotch or spot upon each leaf is warranted in assuming that his trees have been attacked by this new disease. He can be certain it is so if, simultaneously with the falling of the foliage, the fruit develops a soft rot patch on the rind.

The foliage and twigs nearest to the ground are the first to become attacked, the disease spreading upwards throughout the tree. Shrub-like trees with a dense foliage will suffer more than those having their branches spaced, such conditions admitting plenty of light and air throughout the tree. Dense foliage is conducive to the spread of the disease and recurrent attacks.

In the case of leaves attacked in the very early stages, the section infected has a semi-transparent look similar to that of foliage in an early morning following a heavy frosting. They soon begin to fall, the majority of them still in the green stage. That portion attacked, which is usually towards the terminal end, shows up the diseased zone by developing a dark-coloured blotch, or large spot. The attack on the twigs and leaves appears to be simultaneous, and the bark soon develops blackish-coloured blotches irregular in shape, such blotches turning a reddish brown in the advanced stages of the disease. The growths attacked quickly shrivel, eventually dying. It is not unusual to find a small section of a tree facing a cool aspect severely damaged, whilst those parts enjoying warmer conditions are free from attack. Again, the disease may solely confine its spread to the lower portion of the tree, this being chiefly controlled by the form of tree and the weather conditions subsequent to infection. Trees whose first branches are some distance from the ground are not so severely attacked as those with low-hanging branches.

Under a magnifying glass in the very early stages of attack, the oil cells appear to be somewhat enlarged and greasy looking, more so than those in the neutral zone. Following upon these conditions, a small soft patch quickly appears upon the rind, enlarging on an average from 1 inch to 2 inches in diameter. In the diseased zone, small whitish spots soon make their appearance.

At a certain advanced stage of the disease, if the thumb be pressed flatly against the diseased zone and then slowly withdrawn, fine hair-like threads of a sticky nature will be drawn out, adhering to the skin of the thumb.

The attack generally takes place upon the unexposed side of the fruit. Within a very short period it begins to fall, decay spreading over the whole of the rind if the weather conditions remain moist. If dry conditions set in, the rind, where diseased, will become in appearance similar to that of an orange after long storage in a dry place, this being brought about probably through the destruction and drying out of the oil cells. If, in the early stages of attack, the rind in the diseased zone be removed, no damage to the flesh will be apparent, but later the flesh becomes tainted, and of a pronounced bitter taste.

No fruit should be gathered, packed, or stored whilst wet or moist conditions prevail. This new fungus disease will develop upon sound fruit at any time from one to seven days after it is harvested. Citrus should, therefore, be stored under dry conditions, and not marketed for a week following harvesting. If sent away before the expiry of a week, there is a risk

of decay during transit, and, quite apart from the financial loss to the grower, there is the chance of disseminating the disease in clean areas.

So far there has been no signs of gumming upon the twigs and branches following an attack, although one tree is dying, its condition being similar to that set up by collar rot, or bark blotch fungus. Through defoliation, and the killing of the terminal twigs upon the branches, the physical condition of the trees is much reduced. Such trees should be assisted to regain vigorous conditions by the cutting away of all diseased and dead portions during the warm weather. These parts should be carefully burnt. In the autumn, a suitable manure or combined manures, should be applied to each tree.

Whether citrus groves subject to summer irrigation are more susceptible to attack than those under dry cultivation has yet to be proved. The grove referred to is irrigated during dry weather. So far, the disease has not made its appearance in any other grove in the district, but the writer found trees attacked by this disease in two small groves at Euroa, where summer irrigation is carried out.

Treatment.

Apart from destroying all diseased fruit in the grove at Lower Everton, nothing in a systematic way was done last season to combat this fungus pest, chiefly owing to its not being discovered till late in the season.

The application of copper-soda wash after a first attack seems to allay the spread of this disease; a mandarin tree so treated showed no signs of further attacks following favorable weather conditions.

The value of certain formulæ to combat the disease will be tested during the forthcoming season in the grove of its origin in this State. As the spores of the fungus rest in, and probably upon or near the surface of, the soil during unfavorable weather conditions for their development, it is necessary that all fallen leaves be raked up, and that all diseased fruit upon the ground and trees be gathered and destroyed by burning or deep burying; if this latter be practised, the leaves, &c., should be well covered with quicklime before the hole is filled.

If any suspicious symptoms develop, following upon wet, cold weather conditions in late autumn or early winter, no time should be lost in giving the trees and soil directly beneath the trees a thorough spraying with Bordeaux Mixture, care being taken that the spray is well-directed beneath the leaves, &c., and all parts of the tree well drenched with the wash. Later sprayings will most likely be necessary during the colouring and ripening stages of the fruit.

The writer advocates for the later sprayings the use of copper-soda wash, which, when being applied, should be well directed against the fruit. If preventive measures are not immediately proceeded with following an attack, the disease will most likely rapidly spread throughout the whole grove, the writer having witnessed, following a period of 24 hours of wet, cold weather, the destruction of a heavy crop of Washington Navel Oranges, as well as fruiting laterals; in addition, the partial defoliation of the trees occurred within a few days.

As already stated, this disease is first noticed upon the leaves, &c., close to or upon the ground; therefore, it is necessary to judiciously

prune the trees, removing all boughs lying upon or close to the ground. When performing this work, care should be exercised to see that the butts will not be over-exposed to the hot rays of the sun during the warm months of the year. Dense lateral conditions in the centre of the trees should not be allowed, nor shrub-like conditions to prevail; spacing the lateral system and boughs should be practised, so as to admit plenty of light and air. These precautions will not only make an attack less severe, but will make the work of spraying easier. The soil beneath the trees should be kept free from weeds and other growths, so as to allow plenty of light and air to the soil.

After the removal of any large boughs, the wounds should be carefully pared with a sharp knife, and painted over with a mixture made in the following way:—Dissolve, by melting over a fire, two parts pulverized resin, and one part paraffin wax. This should be applied while still hot.

Lime should be applied to the soil at the rate of from 7 to 8 cwt. per acre, care being taken that the soil directly beneath and around the trees receives a share.

Probably the use of slaked lime (calcium hydrate), water or air-slaked, would be more beneficial for this purpose than a mild lime, such as carbonate or sulphate; the latter limes are suitable for light sandy soils, whilst the first-mentioned is more suited to heavy soils. The lime should be applied in the spring or early autumn. The application to the soil beneath the trees after the first heavy rain in the autumn of sulphate of iron, at the rate of 2 lbs. to 10 gallons of water, will not only have a stimulating effect upon the growth of the trees, but will act as a fungicide as well.

BORDEAUX MIXTURE.

The following method of making Bordeaux and Copper-Soda Mixtures will be found satisfactory:—

Sulphate of Copper (Bluestone)	..	6 lbs.
Fresh lump lime	.. ..	4 lbs.
Water	.. ..	40 gallons.
Casein	.. ..	5 ounces.

Dissolve the bluestone in 20 gallons of water, slake the lime into a paste with a small quantity of water, and make up to 20 gallons with water. Then run the bluestone and lime water simultaneously into a third vessel through a strainer. Emulsify the casein with a couple of handfuls of lime in a little water, strain, and add to the other ingredients. Casein is included as an adhesive property. Wooden casks should be used for preparing this mixture.

COPPER-SODA MIXTURE.

Sulphate of Copper (Bluestone)	..	6 lbs.
Washing Soda	.. ..	9 lbs.
Water	.. ..	50 gallons.

Dissolve the bluestone in 25 gallons of water, and dissolve the soda in 25 gallons of water; run simultaneously together as for Bordeaux Mixture.

As a deterrent against attack, spraying should be commenced about the latter end of May, or even sooner if the weather conditions are favorable to the development of this fungus pest.

ROTATION SYSTEMS FOR HAY GROWING.

By J. Keane, B.Ag.Sc., Science Field Officer.

In 1913 the Department of Agriculture commenced a series of experiments at the State Research Farm, Werribee, with the object of ascertaining which cropping systems were best suited to such a district. Thirteen different rotations have been tested, each having its own set of permanent half-acre plots. Four of these systems deal with the principal crop of the Werribee district, *i.e.*, oaten hay—the rotations being—(i) hay grown continuously, (ii) hay alternating with bare-fallow, (iii) hay after barley and bare-fallow, and (iv) hay after barley and peas.

As these tests have now been carried on continuously for eight years, it is possible, from a study of the results obtained, to gain some idea of the yields to be expected with each system under conditions similar to those obtaining at Werribee. In this district the average annual rainfall is slightly over 20 inches, but, owing to the nature of its distribution, this is much less effective than a similar amount would be in the Northern districts of Victoria. The rain falls mainly in the form of light showers, which are usually followed by strong winds. This means that a large percentage of the moisture is lost by evaporation from the surface, so that the effective rainfall is much less than would, at first sight, appear to be the case.

The following table shows the yields obtained from the plots during the last seven years:—

TABLE I.—SHOWING YIELDS OF HAY AND OTHER CROPS WHEN GROWN UNDER VARYING CROP ROTATION SYSTEMS, 1914-20, STATE RESEARCH FARM, WERRIBEE.

Year.	Rainfall.	Hay continuously.	Hay after Bare Fallow.	Hay after Barley and Bare Fallow.		Hay after Barley and Peas.		
		Yield per Acre of Oaten Hay.	Yield per Acre of Oaten Hay.	Yield per Acre of Hay.	Yield per Acre of Barley.	Yield per Acre of Hay.	Yield per Acre of Barley.	Yield per Acre of Peas.
	ins.	cwt.	cwt.	cwt.	bush.	cwt.	bush.	bush.
1914 ..	13·22	15·3	31·7	30·9	18·1	23·6	15·6	2·2
1915 ..	15·55	26·2	52·2	61·6	31·6	54·6	32·9	15·2
1916 ..	28·79	24·2	52·1	51·5	10·9	33·8	8·5	Failed
1917 ..	20·10	20·0	38·8	40·5	24·3	21·0	24·8	14·8
1918 ..	19·96	39·5	71·9	66·4	12·6	49·5	11·1	6·1
1919 ..	22·46	28·0	40·0	38·0	19·4	19·0	16·0	1·6
1920 ..	21·69	13·9	51·4	58·9	24·4	26·2	19·1	20·0
Average ..	20·25	23·9	48·3	49·7	20·2	32·5	18·3	8·5

This table shows that, over the past seven years, the average yield of hay obtained, when grown after bare-fallow, or barley and bare fallow, was more than double that obtained from the plot on which hay was grown continuously. These results indicate that the hay-grower could obtain a greater yield of hay by sowing *half* his area each year on a well-worked bare-fallow than he could by sowing the whole area year after year.

But, as different cultural treatment is involved in each system, it is easy to see that a study of the yields obtained is not sufficient to indicate which system is likely to prove the most profitable when tried on a commercial scale. With the object of determining this important point, the financial returns to be expected from a 300-acre farm under each of these four systems have been worked out. Four 300-acre farms are considered as:—

FARM A.—300 acres, sown to hay each year.

FARM B.—150 acres under bare-fallow, and 150 acres sown to hay each year.

FARM C.—100 acres under bare-fallow, 100 acres under barley, and 100 acres sown to hay each year.

FARM D.—100 acres under peas, 100 acres under barley, and 100 acres sown to hay each year.



Rotation Plots at Werribee showing differences in Yield of Hay. Plot 1.—Hay continuously. Plot 2.—Hay after bare fallow.

A yearly balance-sheet has been prepared for each farm—the farms being debited with the rent of the land, cost of each operation actually carried out on the plots, seed, manure, &c., and credited with the yields of produce obtained from the plots in each system.

As the costs of the various operations could not be obtained for each year, present-day costs have been taken. These were determined from the records of the Research Farm, allowance being made for labour, horses, interest on capital, depreciation, &c.

The costs work out as follows:—Ploughing, 8s. 4d. per acre; cultivating, 2s. 8d. per acre; drilling, 2s. 1d. per acre; harrowing, 1s. 3d. per acre; rolling, 1s. 2d. per acre; rolling and harrowing (one operation), 1s. 8d. per acre; reaper and binder, 5s. 6d. per acre; mowing, 4s. 2d. per acre; carting and stacking, 5s. per ton; binder twine, 1s. 4½d. per ton of hay; stooking, 3s. per acre; threshing barley, £4 per 100 bags; and flailing peas, 1s. per bushel.

As this method was used for arriving at the cost of production, it would not have been comparable to take the market price of the produce each year, so the average prices of the seven years were taken. The average prices for crop products over this period were as follows:—

Oaten hay, £3 per ton.

Oats (for seed), 3s. 7d. per bushel.

Barley, 3s. 9d. per bushel.

Peas, 6s. 4d. per bushel.

The grazing value of the stubble in each system was estimated by considering the time between harvesting and ploughing each portion of the farm, and calculating it in terms of acres per annum. Rental value for grazing is taken at 7s. 6d. per acre per annum. Thus the 300-acre farm on which continuous cropping is practised might be assumed to have all the paddocks free of hay by the end of December. In order to prepare the land in good time for the following seeding, 100 acres would require to be ploughed during each of the months January, February, and March to complete ploughing by the end of April. During April the land would require cultivation and harrowing in preparation for seeding. During May and June seeding operations would be in full swing. With the possible exception of some grazing of early-sown crops in favorable seasons, it is clear that the grazing on this farm would be narrowed down to the three summer months January, February, and March. Approximately, 300 acres of stubble would be available for such grazing on 1st January, 200 acres on 1st February, and 100 acres on 1st March, whilst by 1st April practically all the land would be ploughed in preparation for seeding. On this farm a maximum of 300 acres would be available for one month, 200 acres for two months, whilst a maximum of 100 acres would be free for three months, i.e., the maximum grazing possible would be the equivalent of 600 acre-months, or 50 acres for one year. This, at 7s. 6d. per acre per annum, would amount to £18 15s. While such a method of computation has its limitations, it furnishes a fairly reliable means of estimating the comparative grazing equivalents under each rotation.

The following table illustrates the method employed in determining the profit to be expected with each system in a given year. For purposes of illustration, the year 1917 is taken as being fairly typical of normal seasons in the Werribee district:—

FARM A—300 ACRES SOWN TO OATEN HAY EACH YEAR.

<i>Dr.</i>	£ s. d.	<i>Cr.</i>	£ s. d.
Rent, 300 acres, at 15s. per acre ..	225 0 0	300 tons oaten	
Ploughing, 300 acres, at 8s. 4d. per acre	125 0 0	hay, at £3 per	
Rolling and harrowing, 300 acres, at		ton ..	900 0 0
1s. 8d. per acre ..	25 0 0	Grazing, equivalent	
Cultivating, 300 acres, at 2s. 8d. per acre	40 0 0	50 acres, at 7s. 6d.	
Rolling, 300 acres (twice), at 1s. 2d. per		per acre ..	18 15 0
acre ..	35 0 0		
Harrowing, 300 acres, at 1s. 3d. per acre	18 15 0		
Drilling, 300 acres, at 2s. 1d. per acre ..	31 5 0		
Seed, 487½ bushels oats, at 3s. 7d. per			
bushel ..	87 6 10		
Manure, 348·4 cwt. super., at 5s. per			
cwt. ..	87 2 0		
Reaper and binder, 300 acres, at 5s. 6d.			
per acre ..	82 10 0		
Stooking, 300 acres, at 3s. per acre ..	45 0 0		
Carting and stacking, 300 tons, at 5s.			
per ton ..	75 0 0		
Twine, 300 tons hay, at 1s. 4½d. per ton	20 12 6		
Balance (profit) ..	21 3 8		
	918 15 0		918 15 0

FARM B—150 ACRES SOWN TO OATEN HAY, AND 150 ACRES UNDER BARE-FALLOW EACH YEAR.

<i>Dr.</i>	£ s. d.	<i>Cr.</i>	£ s. d.
Rent, 300 acres, at 15s. per acre ..	225 0 0	291 tons oaten	
Ploughing, 150 acres, at 8s. 4d. per acre	62 10 0	hay, at £3 per	
Rolling and harrowing, 300 acres, at		ton ..	873 0 0
1s. 8d. per acre ..	25 0 0	Grazing, equivalent	
Rolling, 300 acres, at 1s. 2d. per acre	17 10 0	to 100 acres, at	
Cultivating, 300 acres, at 2s. 8d. per acre	40 0 0	7s 6d. per acre	37 10 0
Drilling, 150 acres, at 2s. 1d. per acre	15 12 6		
Harrowing, 150 acres, at 1s. 3d. per acre	9 7 6		
Seed, 243½ bushels oats, at 3s. 7d. per			
bushel ..	43 13 5		
Manure, 174·2 cwt., at 5s. per cwt. ..	43 11 0		
Reaper and binder, 150 acres, at 5s. 6d.			
per acre ..	41 5 0		
Stooking, 150 acres, at 3s. per acre ..	22 10 0		
Carting and stacking, 291 tons, at 5s.			
per ton ..	72 15 0		
Twine, 291 tons hay, at 1s. 4½d. per ton	20 0 1		
Balance (profit) ..	271 15 6		
	910 10 0		910 10 0

FARM C—100 ACRES SOWN TO OATEN HAY, 100 ACRES SOWN TO BARLEY, AND 100 ACRES UNDER BARE-FALLOW EACH YEAR.

Dr.	£	s.	d.	Cr.	£	s.	d.
Rent, 300 acres, at 15s. per acre ..	225	0	0	202½ tons oaten hay, at £3 per ton ..	607	10	0
Ploughing, 200 acres, at 8s. 4d. per acre ..	83	6	8	2,434 bushels barley, at 3s. 9d. per bushel ..	456	7	6
Rolling and harrowing, 300 acres, at 1s. 8d. per acre ..	25	0	0	Grazing, equivalent to 75 acres, at 7s. 6d. per acre ..	28	2	6
Cultivating, 100 acres (four times), at 2s. 8d. per acre ..	53	6	8				
Rolling, 200 acres, at 1s. 2d. per acre ..	11	13	4				
Harrowing, 200 acres, at 1s. 3d. per acre ..	12	10	0				
Drilling, 200 acres, at 2s. 1d. per acre ..	20	16	8				
Seed, 162½ bush. oats, at 3s. 7d. per bush. ..	29	2	3				
Seed, 140 bush. barley, at 3s. 9d. per bush. ..	26	5	0				
Manure, 232·2 cwt. super., at 5s. per cwt. ..	58	1	0				
Reaper and binder, 200 acres, at 5s. 6d. per acre ..	55	0	0				
Stooking, 200 acres, at 3s. per acre ..	30	0	0				
Threshing barley, 811 bags, at £4 per 100 ..	32	8	10				
Bags, 811, at 10s. per dozen ..	33	15	10				
Carting and stacking, 202½ tons, at 5s. per ton ..	50	12	6				
Twine, 405 tons oaten and barley hay, at 1s. 4½d. per ton* ..	27	16	10				
Balance (profit) ..	317	4	5				
	1,092	0	0		1,092	0	0

* It is assumed that the weight of barley hay is equal to that of the oaten hay.

FARM D—100 ACRES SOWN TO OATEN HAY, 100 ACRES SOWN TO BARLEY, AND 100 ACRES SOWN TO PEAS EACH YEAR.

Dr.	£	s.	d.	Cr.	£	s.	d.
Rent, 300 acres, at 15s. per acre ..	225	0	0	105 tons oaten hay, at £3 per ton ..	315	0	0
Ploughing, 300 acres, at 8s. 4d. per acre ..	125	0	0	2,482 bushels barley, at 3s. 9d. per bushel ..	465	7	6
Cultivating, 100 acres (five times), at 2s. 8d. per acre ..	66	13	4	1,483½ bushels peas, at 6s. 4d. per bushel ..	469	14	5
Rolling and harrowing, 300 acres, at 1s. 8d. per acre ..	25	0	0	Grazing, equivalent to 50 acres, at 7s. 6d. per acre ..	18	15	0
Rolling, 200 acres, at 1s. 2d. per acre ..	11	13	4				
Harrowing, 300 acres, at 1s. 3d. per acre ..	18	15	0				
Drilling, 300 acres, at 2s. 1d. per acre ..	31	5	0				
Mowing, 100 acres, at 4s. 2d. per acre ..	20	16	8				
Reaper and binder, 200 acres, at 5s. 6d. per acre ..	55	0	0				
Stooking, 300 acres, at 3s. per acre ..	45	0	0				
Carting and stacking, 105 tons, at 5s. per ton ..	26	5	0				
Threshing barley, 827 bags, at £4 per 100 ..	33	1	7				
Flailing peas, 1,483½ bush., at 1s. per bush. ..	74	3	4				
Bags (barley and peas), 1,321, at 10s. per dozen ..	55	0	10				
Seed, 150 bush. peas, at 6s. 4d. per bush. ..	47	10	0				
Seed, 162½ bush. oats, at 3s. 7d. per bush. ..	29	2	3				
Seed, 140 bush. barley, at 3s. 9d. per bush. ..	26	5	0				
Manure, 348·4 cwt. super., at 5s. per cwt. ..	87	2	0				
Twine, 210 tons barley and oaten hay, at 1s. 4½d. per ton ..	14	8	9				
Balance (profit) ..	251	14	10				
	1,268	16	11		1,268	16	11

The above figures show that, for this particular season (1917), after deducting all charges, the 300-acre farm on which hay was grown

continuously showed a profit of £21, i.e., the returns barely paid for the cost of production. Where 150 acres were sown on a well-worked bare-fallow, the return was £271 over the cost of production. A still greater return was obtained from the 300 acres where 100 acres were sown to oaten hay, 100 acres to barley, and 100 acres left in bare-fallow, the return being £317.

The fourth rotation—"Hay after barley and peas"—is apparently not so suitable to the Werribee district, the return where 100 acres were sown to each of these crops being £251. This is probably accounted for by the fact that the moisture conserved by the bare-fallow is more important to the oat crop than the nitrogen stored up by the peas.

The returns over the last seven years are shown in the following table:—

TABLE II.—SHOWING COMPARATIVE NET PROFIT AND AVERAGE NET PROFIT FROM HAY GROWN UNDER FOUR DIFFERENT SYSTEMS OF CROP ROTATION FOR A PERIOD OF SEVEN YEARS, 1914-1920, STATE RESEARCH FARM, WERRIBEE.

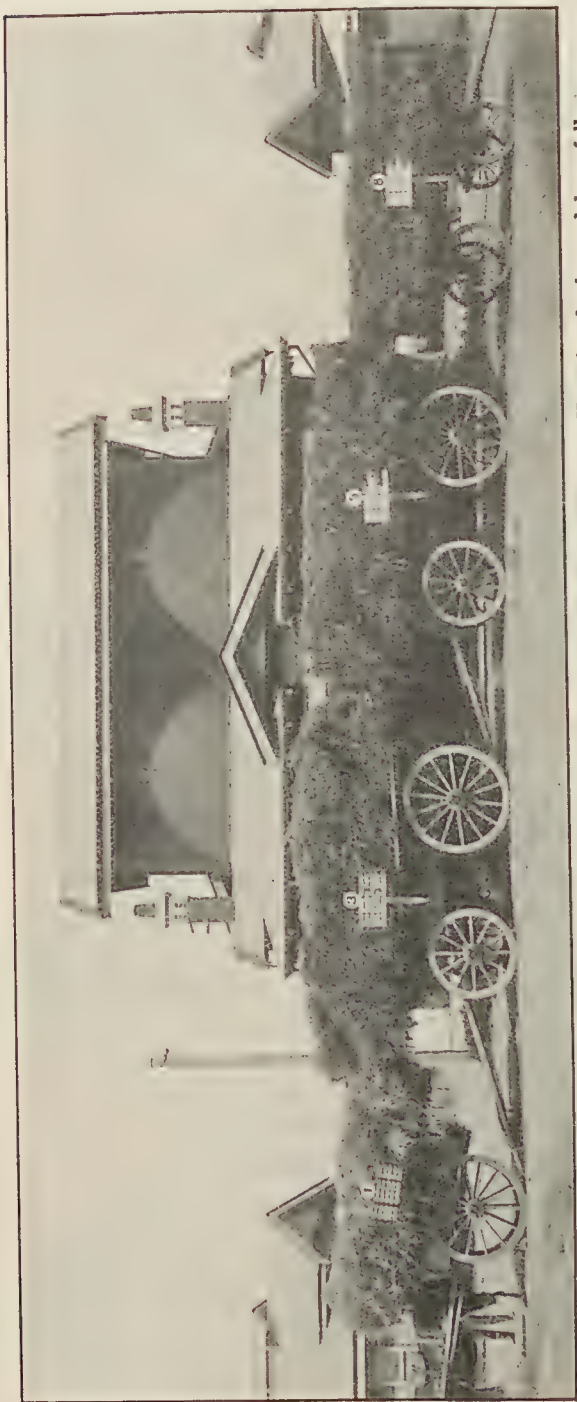
Year.	Hay continuously.		Hay after Bare Fallow.		Hay after Barley and Bare Fallow.		Hay after Barley and Peas.	
	Profit.	Loss.	Profit.	Loss.	Profit.	Loss.	Profit.	Loss.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1914 ..		219 1 11		26 9 0		38 11 1		263 19 5
1915 ..	359 9 11	..	457 14 10	..	675 10 1	..	789 19 8	..
1916 ..	170 6 5	..	482 5 9	..	187 13 11	..	239 9 7	..
1917 ..	21 3 8	..	271 15 6	..	317 4 5	..	251 14 10	..
1918 ..	839 18 4	..	929 0 0	..	479 4 5	..	212 19 7	..
1919 ..	325 6 6	..	179 12 0	..	116 5 3	..	270 9 5	..
1920 ..	..	208 9 2	365 10 0	..	459 8 11	..	358 1 8	..
Totals ..	1,716 4 10	427 11 1	2,685 18 1	26 9 0	2,235 7 0	38 11 1	1,612 15 9	773 18 5
Net Profit	1,288 13 9	..	2,659 9 1	..	2,196 15 11	..	838 17 4	..
Average Profit*	184 2 0	..	379 18 5	..	313 16 7	..	119 16 9	..

* These amounts represent clear profit after deducting all charges, including rent of land, depreciation, &c., and allowing for the labour of the farmer at current rate of wages.

The average returns over the last seven years show a slightly different order from those of the 1917 season—the highest average return being obtained from the farm on which hay is alternated with bare-fallow. Next in order comes the farm on which the cropping system is "Hay after barley and bare-fallow."

The return from the farm on which hay was grown continuously is only half that obtained where the hay was alternated with bare-fallow. The lowest average return was obtained with the "Hay after barley and peas" rotation.

The above results indicate clearly the value of the practice of bare-fallowing. It is now recognised by farmers that, in the wheat districts, the best returns are obtained only where the wheat is sown on fallow land, and it is obvious that the hay-grower must follow the same practice if he desires the maximum profit. That is, of course, in districts such as Werribee, where the rainfall during the growing period of the crop is the limiting factor in crop production.



Oaten Hay from Rotation Plots, 1918. 1. Hay continuously. 3. Hay after bare fallow. 5. Hay after barley and bare fallow. 8. Hay after peas and barley.

Besides obtaining a better financial return, the grower who sows his hay on fallow land finds that he has his labour much more evenly distributed. The fallowing may be done during the winter months, and, if kept in a well-worked condition, a good seed bed is ready at seeding time without the rush of work involved in ploughing and working up the land at the busiest part of the year.

Another important advantage in any rotation system which includes a period of bare-fallow is that the land may be kept free from weeds. This is particularly noticeable on the plots at Werribee—the plot on which hay has been grown continuously being very dirty, while, on the other hand, the plots which undergo a period of bare-fallow are practically free from weeds.

In connexion with these experiments, it is significant that the average yield of hay in Victoria for the past seven years was 1.26 tons.

This is practically the same as the average yield obtained at Werribee for seven years on the plot where hay has been grown continuously, viz., 1.2 tons. The greater part of the hay grown in Victoria is sown on stubble land, and it would appear from the above figures that this average yield could be greatly increased, with considerable profit to the grower, by the adoption of a suitable system of crop rotation.

STANDARD TEST COWS.

Report for Quarter ended 31st March, 1921.

Hereunder are set out the individual records of the 98 animals which qualified for certificates during the quarter:—

Mrs. M. I. ALSTON, Cobram. (Jersey.)

Completed since last report, 2. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Pidgeon of Kameruka ..	6035	18.5.20	273	lbs. 12½	lbs. 6,821	5.23	lbs. 355.83	lbs. 200	lbs. 405½
Silver Bell of Kameruka ..	6038	25.5.20	*233	21½	6,580	5.81	382.54	250	436

* Withdrawn through premature calving.

J. BAKER, Gheringhap. (Red Poll.)

Completed since last report, 2. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Elcho Maid ..	Not yet allotted	23.4.20	267	lbs. 4	lbs. 5,684	4.76	lbs. 270.85	lbs. 250	lbs. 308½
Korong Belle ..	"	23.5.20	273	17½	7,050	4.45	313.95	250	358

C. BAMFORD, Benalla. (Ayrshire.)

Completed since last report, 4. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Beauty of Medburn Grove ..	4858	11.4.20	273	lbs. 13½	lbs. 5,630	4.63	lbs. 260.85	lbs. 175	lbs. 297½

F. BIDGOOD, Staghorn. (Jersey.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Miss Twilight	4606	26.4.20	273	lbs. 18½	lbs. 6,163	5.46	lbs. 336.75	lbs. 250	lbs. 384

Mrs. A. BLACK, Noorat. (Jersey.)

Completed since last report, 2. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Marguerite 2nd	Not yet allotted	6.4.20	273	lbs. 10½	lbs. 7,689	4.64	lbs. 356.51	lbs. 200	lbs. 406½

CALLERY BROS., Bannockburn. (Ayrshire.)

Completed since last report, 3. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Marjorie of Langley Park ..	2839	9.4.20	273	lbs. 33½	lbs. 9,713	4.54	lbs. 441.31	lbs. 250	lbs. 503
Mountain Princess of Langley Park	3480	25.6.20	273	7½	6,014	4.49	270.22	200	308

J. W. COCHRANE, Moorabbin. (Ayrshire.)

Completed since last report, 3. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Rita of Springfield ..	6241	30.3.20	221	lbs. 4	lbs. 4,024	4.76	lbs. 191.75	lbs. 175	lbs. 218½
Bud 2nd of Glengowrie ..	3850	20.4.20	269	4	5,437	4.71	256.23	250	292½

DEPARTMENT OF AGRICULTURE, Werribee. (Red Poll.)

Completed since last report, 5. Certificated, 4.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
U.S.A.	Not yet allotted	26.4.20	245	lbs. 4	lbs. 4,161	4.85	lbs. 201.87	lbs. 175	lbs. 230
Bramble	"	26.4.20	273	23 1/2	7,744	4.18	323.82	200	369 1/2
Panama	"	18.5.20	273	15 1/2	7,944	4.00	317.53	250	362
Morocco	"	9.6.20	254	4	8,138	3.46	282.10	250	321 1/2

C. DEVERALL, Wangaratta. (Jersey.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Isla of Springhurst . . .	5397	9.6.20	273	lbs. 22	lbs. 6,749	4.86	lbs. 327.99	lbs. 200	lbs. 374

C. FALKENBERG, Elliminyt. (Jersey.)

Completed since last report, 2. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Trixie of Colac	4914	6.4.20	273	lbs. 13 1/2	lbs. 5,494	5.47	lbs. 300.64	lbs. 250	lbs. 342 1/2
Doris 2nd of Kingsvale . . .	4023	3.5.20	273	16 1/2	5,685	5.23	297.18	250	338 1/2

FLACK and SEWELL, Berwick. (Friesian.)

Completed since last report, 3. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Bainfield (Imp.)	Not yet allotted	24.4.20	273	lbs. 33	lbs. 8,667	3.54	lbs. 306.68	lbs. 175	lbs. 349 1/2
Leonora Canary (Imp.) . . .	"	10.5.20	273	23	7,638	4.49	342.91	175	390 1/2

G. GANGE, Mininera. (Ayrshire.)

Completed since last report, 1. Certificated, Nil.

GEELONG HARBOR TRUST, Marshalltown. (Ayrshire.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Gipsy Girl of Sparrovale ..	3894	16.4.20	273	lbs. 10½	lbs. 6,581	4.69	lbs. 308.55	lbs. 250	lbs. 351½

T. HARVEY, Boisdale. (Jersey.)

Completed since last report, 3. Certificated, 3.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Dainty 6th ..	4099	29.3.20	273	lbs. 40	lbs. 11,033	5.27	lbs. 581.49	lbs. 250	lbs. 662½
Lady Marge of Jerseyholm ..	4981	12.6.20	273	17	7,576	6.10	462.05	250	526½
Kirsty 7th of Jerseyholm ..	5918	22.6.20	273	12	6,808	5.88	400.48	200	456½

W. HENDERSON, Grasmere. (Ayrshire.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Gertie of Warrook. . .	3986	4.5.20	273	lbs. 5	lbs. 5,686	4.86	lbs. 276.38	lbs. 250	lbs. 315

J. H. HUNTER, Tyntynder Central. (Jersey.)

Completed since last report, 2. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Ringtail of Tarnpirr ..	5170	21.5.20	273	lbs. 16	lbs. 6,595	5.36	lbs. 352.89	lbs. 250	lbs. 402½
Trixie of Tarnpirr ..	5173	22.5.20	273	23	8,505	6.06	515.52	250	587½

A. JACKSON, Glen Forbes. (Jersey.)

Completed since last report, 2. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Creamy of Lesterfield ..	Not yet allotted	3.8.20	273	lbs. 16	lbs. 6,261	4.50	lbs. 282.07	lbs. 250	lbs. 321½
Canary of Lesterfield ..	"	27.5.20	273	7	4,588	5.44	249.79	200	248½

S. A. JOHNSON, Woodend. (Ayrshire.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Molline of La Motte ..	5259	1.4.20	273	lbs. 14½	lbs. 6,021	5.13	lbs. 309.02	lbs. 200	lbs. 352½

A. W. JONES, Whittington, Geelong. (Jersey.)

Completed since last report, 2. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Mermaid 4th of Melrose ..	6307	31.3.20	273	lbs. 24½	lbs. 8,599	6.30	lbs. 541.76	lbs. 250	lbs. 617½
Lady Grey 1st of St. Albans	4186	17.6.20	273	12	7,439	6.24	464.05	250	529

J. KERR, Bacehus Marsh. (Shorthorn.)

Completed since last report, 2. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Morven Duchess 14th ..	Not yet allotted	19.4.20	273	lbs. 21½	lbs. 7,017	3.57	lbs. 250.47	lbs. 200	lbs. 285½

C. G. KNIGHT ESTATE, Benalla. (Jersey.)

Completed since last report 4. Certificated, 4.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Marie of Tarnpirr ..	6029	5.4.20	273	lbs. 94	lbs. 4,578	5.82	lbs. 266.31	lbs. 250	lbs. 303½
Foxglove 2nd of Tarnpirr ..	Not yet allotted	5.4.20	273	11½	4,472	5.57	248.99	175	285½
My Queen of Tarnpirr ..	4209	10.4.20	273	14½	5,878	5.21	306.15	250	349
Primrose 2nd of Tarnpirr ..	Not yet allotted	13.6.20	273	10½	4,132	5.14	212.30	175	242

J. A. LANG, Alvie. (Ayrshire.)

Completed since last report, 8. Certificated, 7.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Dairymaid of Riccarton ..	6495	31.3.20	273	lbs. 8	lbs. 5,053	5.43	lbs. 274.24	lbs. 200	lbs. 312½
Doey of Yalart ..	3146	5.4.20	273	12½	6,945	4.54	315.34	250	359½
Fluffy of Willowvale ..	5317	7.4.20	273	4	4,967	4.61	229.24	175	261½
Milkmaid of Riccarton ..	6505	12.5.20	273	6½	7,438	4.46	331.98	200	378½
Bloom of Roxburgh ..	Not yet allotted	20.5.20	273	9	4,443	4.47	199.53	175	227½
Tabitha of Glencra ..	3213	26.5.20	273	5½	9,330	4.57	426.82	250	486½
Esme of Riccarton ..	6500	11.6.20	*218	11	6,690	4.06	271.94	200	310

* Withdrawn owing to premature calving.

Mrs. E. M. LENNIE, Tongala. (Jersey.)

Completed since last report, 2. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Sweet Nell of Hillcrest ..	6019	13.4.20	273	lbs. 24	lbs. 5,616	5.39	lbs. 302.87	lbs. 250	lbs. 345½

LESLIE and GERRAND, Sale. (Ayrshire.)

Completed since last report, 1. Certificated 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Flossie 2nd of Raith ..	6522	27.5.20	262	lbs. 4	lbs. 7,185	4.05	lbs. 291.28	lbs. 250	lbs. 332

R. LIDGETT, Myrniong. (Shorthorn.)

Completed since last report, 2. Certified, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Beauty	Not yet allotted	16.4.20	273	lbs. 12	lbs. 6,749	4.34	lbs. 293.31	lbs. 250	lbs. 334½
Pentland's Bloom 2nd ..	"	23.5.20	273	7	5,783	4.21	243.85	200	278

C. D. LLOYD, Caulfield. (Jersey.)

Completed since last report, 1. Certified, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Starbright 9th	Not yet allotted	6.4.20	273	lbs. 32½	lbs. 9,690	6.01	lbs. 582.07	lbs. 200	lbs. 663½

C. G. LYON and R. R. KERR, Heidelberg. (Jersey.)

Completed since last report, 6. Certified, 6.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Hawthorn 5th of Banyule ..	5203	19.4.20	273	lbs. 19	lbs. 7,420	5.30	lbs. 393.69	lbs. 250	lbs. 448½
Pretty May (imp.)	3103	15.5.20	273	20½	8,445	5.30	447.63	250	510½
Silvermine 17th of Banyule ..	6079	30.5.20	273	13	5,984	5.21	311.74	200	355½
Princess Victoria of Holmwood	5151	3.6.20	273	24	10,311	4.87	502.05	250	572½
Hawthorn 7th of Banyule ..	6068	6.6.20	273	10½	6,231	5.51	343.13	200	391½
Starfinch 3rd of Banyule ..	6082	14.6.20	273	11	5,703	5.98	341.44	200	389½

F. McIVER, Tarwin Lower. (Ayrshire.)

Completed since last report, 1. Certified, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Ida of Sparrovale	3895	10.4.20	273	lbs. 9½	lbs. 5,731	3.94	lbs. 226.14	lbs. 200	lbs. 257½

P. J. MALONEY, Tongala. (Jersey.)

Completed since last report, 2. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Czarina of Springhurst ..	4380	7.4.20	273	lbs. 25	lbs. 7,507	5.39	lbs. 404.60	lbs. 250	lbs. 461½
Wattle of Springhurst ..	5408	13.4.20	273	26½	8,092	4.69	379.91	250	433

T. MESLEY, Dalyston. (Jersey.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Belle of Warenda ..	Not yet allotted	28.4.20	273	lbs. 16	lbs. 4,392	6.95	lbs. 305.47	lbs. 200	lbs. 348½

H. J. MONCKTON, Whittington, Geelong. (Jersey.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Peerless 12th of Melrose ..	6309	24.4.20	273	lbs. 12½	lbs. 4,849	6.09	lbs. 295.45	lbs. 250	lbs. 336½

Mrs. L. ORCHARD, Grahamvale. (Jersey.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Pansy of Grahamvale ..	5330	2.4.20	273	lbs. 10	lbs. 3,220	5.56	lbs. 346.01	lbs. 250	lbs. 394½

R. RALSTON, Mogionemby. (Ayrshire.)

Completed since last report, 6. Certificated, 3.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Pearl of Ben Kell ..	3052	13.4.20	273	lbs. 14½	lbs. 6,824	4.11	lbs. 280.70	lbs. 250	lbs. 320
Poppy of Ben Kell ..	4584	13.5.20	273	2½	8,488	4.86	412.29	200	470
Dairymaid of Ben Kell ..	3048	13.5.20	273	5½	8,100	4.49	361.03	250	415

J. D. READ, Springhurst. (Jersey.)

Completed since last report, 17. Certificated, 11.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Art of Springhurst ..	6199	29.3.20	273	lbs. 14	lbs. 5,450	4.16	lbs. 226.66	lbs. 200	lbs. 258½
Daffodil of Springhurst ..	4381	29.4.20	273	13	5,045	5.06	300.59	250	342½
Nightshade of Springhurst ..	3707	3.4.20	273	10	5,997	4.72	283.02	250	322½
Verbena of Springhurst ..	5407	5.4.20	273	10	6,854	4.55	311.86	250	355½
Jonquil of Springhurst ..	5398	29.4.20	273	9	5,208	5.91	307.96	200	351
Lucerne of Springhurst ..	5399	22.4.20	273	15½	5,127	5.57	285.77	250	325½
Dauphine of Springhurst ..	6202	22.4.20	269	12	4,339	6.00	260.47	200	297
Acacia of Springhurst ..	6198	25.4.20	273	7½	3,526	5.73	202.21	200	230½
Virginia of Springhurst ..	Not yet allotted	6.5.20	273	12½	4,267	5.60	238.98	175	272½
Lantana of Springhurst ..	6204	10.6.20	273	14½	4,957	5.86	290.62	200	331½
Dolichos of Springhurst ..	6203	20.6.20	*272	9½	4,208	4.85	204.16	200	232½

* Withdrawn one day prematurely.

Miss BRUCE REID, Bundoora. (Jersey.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Jubilee Hydrangea ..	Not yet allotted	16.4.20	273	lbs. 9	lbs. 4,096	5.01	lbs. 205.24	lbs. 200	lbs. 234

C J. REID, Devenish. (Jersey.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Fuchsia 12th of Melrose ..	6299	17.4.20	273	lbs. 11½	lbs. 6,958	5.19	lbs. 361.25	lbs. 250	lbs. 411½

J. ROGERS, Yarraville. (Ayrshire.)

Completed since last report, 1. Certificated, Nil.

G. ROWE, Kardella. (Jersey.)

Completed since last report, 1. Certificated, Nil.

SADLER BROS., Noorat. (Ayrshire.)

Completed since last report, 2. Certificated, 2.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Ruffy of Ecclefechan ..	3086	3.5.20	273	lbs. 14	lbs. 7,154	4.05	lbs. 289.68	lbs. 250	lbs. 330½
Lady Burnbrae ..	4612	10.5.20	273	18	8,420	4.16	350.45	250	399½

AGRICULTURAL HIGH SCHOOL, SALE. (Ayrshire.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Young Madeira of La Trobe	4814	5.4.20	273	lbs. 7	lbs. 5,923	4.04	lbs. 239.56	lbs. 200	lbs. 273

A. H. S. SCHIER, Kernot. (Ayrshire.)

Completed since last report, 2. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
Dear of Midbranch ..	4623	30.3.20	273	lbs. 19	lbs. 6,543	4.04	lbs. 264.34	lbs. 250	lbs. 301½

Mrs. A. SIMS, Toolern Vale. (Jersey.)

Completed since last report, 1. Certificated, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
My Hope of Kameruka ..	6032	9.5.20	273	lbs. 18	lbs. 7,004	4.80	lbs. 336.50	lbs. 200	lbs. 383½

H. STONE, Bildwys. (Shorthorn.)

Completed since last report, 1. Certified, Nil.

O. J. SYME, Macedon. (Friesian.)

Completed since last report, 7. Certified, 7.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
				lbs.	lbs.		lbs.	lbs.	lbs.
Bolobek Jean ..	320	6.4.20	273	29	9,990	3.37	336.51	250	383½
Pearl of Friesland Park ..	306	11.4.20	273	26	9,837	3.60	354.38	250	404
Bolobek Ethel ..	302	6.5.20	177	3½	6,972	4.00	279.25	250	318½
Jennie de Kol ..	301	21.5.20	273	24	8,939	3.57	319.37	250	364
Bolobek Isabella ..	313	22.5.20	273	22½	9,289	3.36	312.23	250	356
Bolobek Amy ..	Not yet allotted	15.6.20	273	23	9,295	3.43	318.62	175	363½
Bolobek Maisie ..	"	20.6.20	273	27½	9,006	3.33	299.91	175	341½

* Calved prematurely. † Died before completion of term.

J. THORBURN, Woodend North. (Ayrshire.)

Completed since last report, 1. Certified, 1.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
				lbs.	lbs.		lbs.	lbs.	lbs.
Possum of La Motte ..	6018	22.4.20	273	15½	6,559	4.63	303.91	250	346½

W. WOODMASON, Oakleigh. (Jersey.)

Completed since last report, 8. Certified, 8.

Name of Cow.	Herd Book Number.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Estimated Butter.
				lbs.	lbs.		lbs.	lbs.	lbs.
Sweet Pansy 3rd of Melrose ..	5502	7.4.20	273	14	5,882	6.20	364.49	250	415½
Quality 6th of Melrose ..	3674	15.4.20	273	22	7,358	4.68	344.24	250	392½
Lady Elector 2nd of Melrose ..	5548	17.4.20	273	10½	5,295	5.84	308.95	250	352½
Jessie 6th of Melrose ..	4519	29.4.20	273	20	7,445	6.05	450.67	250	531½
Vanilla 7th of Melrose ..	5564	9.5.20	273	16	6,532	6.22	406.29	250	463½
Daisy 7th of Melrose ..	5532	14.5.20	273	15½	6,861	5.56	381.36	250	434½
Flower 6th of Melrose ..	3611	17.5.20	273	22½	8,503	5.20	442.51	250	504½
Rarity 10th of Melrose ..	Not yet allotted	6.6.20	273	13½	6,590	6.79	447.58	200	510½



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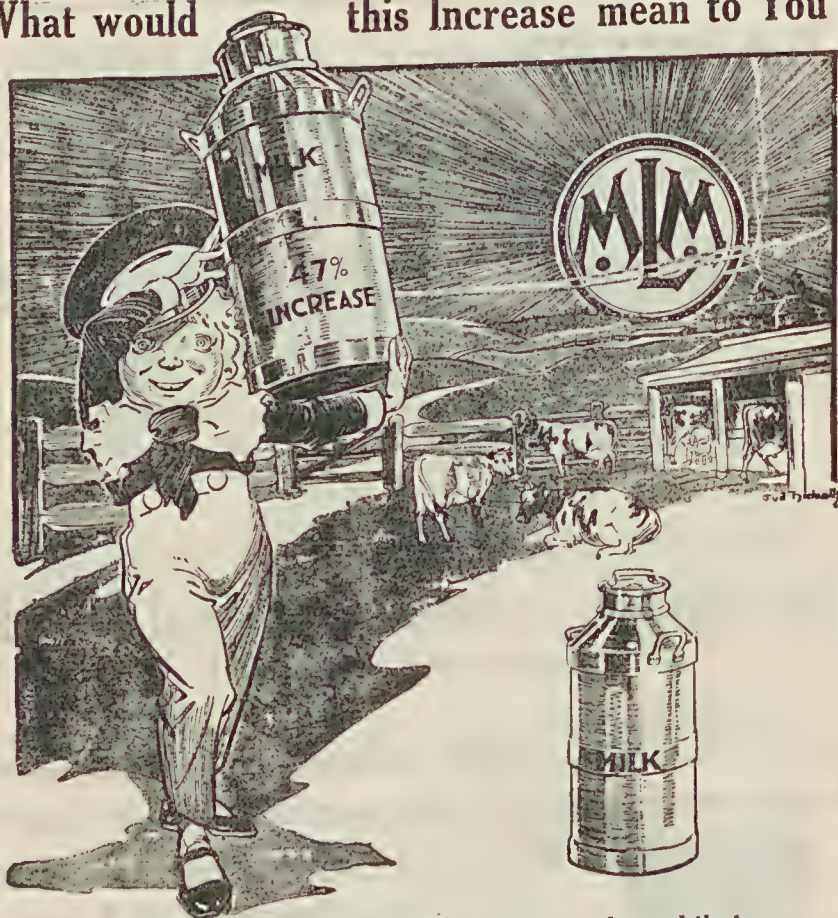
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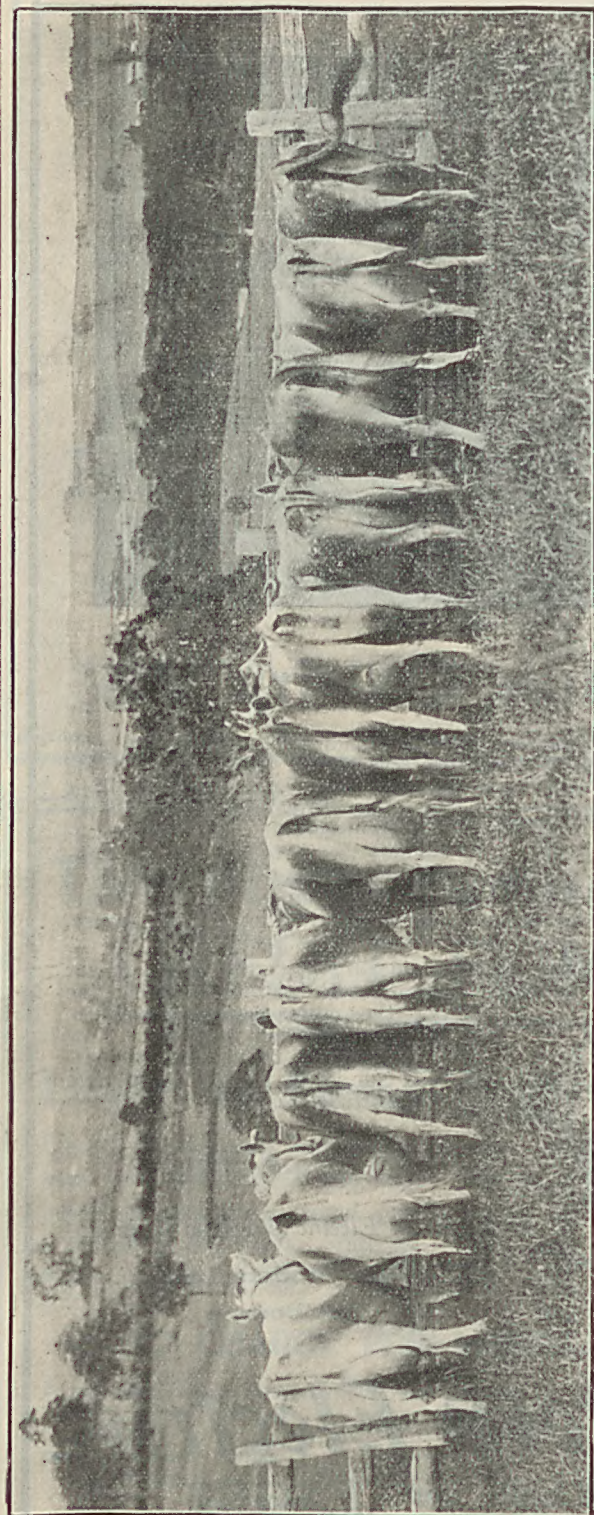
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- No. 3** From Single Tested Subiaco Hens, 235 to 270 eggs, mated to a Cosh x Swift x Moritz Cock who's mother laid 275 eggs - - - - - Price, £2 2/-
- No. 4** From Cosh, Swift, Subiaco, and Moritz Strains, mated to unrelated Cockerels - - - - - Price, £1 1/-

Note.—W. N. O'Mullane's Champion Burnley Pen 1914-15, which established a still unbeaten World's Record of 1699 eggs for 12 months, was the progeny of a hen hatched from a sitting from these yards. The pen realized £75

RHODE ISLAND REDS

- No. 1** From Single Tested Hens, 226 to 264, mated to Cockerels bred from a hen that laid 292 - - - Price, £2 2/-
- No. 2** From Hens bred from Single Tested Hens, mated to Cockerels bred from a 264 Hen - - - Price, £1 1/-

BLACK ORPINGTONS

- No. 1** From Single Tested Hens, 226 to 274, mated to a Cockerel bred from a 313 Hen - - - Price, £2 2/-
- No. 2** Pure Christie, mated to Cockerels bred from a 284 Hen - - - - - Price, £1 1/-

To allow for infertile eggs sixteen eggs will be forwarded for each sitting.
No guarantee of fertility or replacement will therefore be made.

A limited number of Cockerels bred from birds specified above are available for sale. Price—£2 2/- and £1 1/- each.

Postal Order or Cheque should accompany order, which should be addressed to the
MANAGER, RESEARCH FARM, WERRIBEE

SP
6305
1645